WESTERN BIRDS

Vol. 10, No. 2, 1979

SHOUT
SHARE
IT

WESTERN BIRDS

Quarterly Journal of Western Field Ornithologists

President John S. Luther — *Vice-President* Terence R. Wahl
Treasurer Phil Schaeffer — *Membership Secretary* Margaret Schaeffer
Secretary Phyllis Lawson — *Youth Program Secretary* Linda Delaney

Directors Laurence C. Binford, Jeanne A. Comey, David F. DeSante, Stephen A. Laymon, John S. Luther, Guy McCaskie, Richard W. Stallcup, Terence R. Wahl, Janet Wittenmyer

Editor Alan M. Craig

Associate Editor Nora A. Moore

Editorial Board Robert Andrews, Alan Baldridge, William H. Behle, Andrew J. Berger, Laurence C. Binford (Chairman), Jeanne A. Comey, David F. DeSante, Richard Erickson, Joseph Greenberg, Joseph B. Jehl, Jr., Ned K. Johnson, Virginia F. Johnson, Rima Kessel, Charles S. Lawson, Stephen A. Laymon, John S. Luther, Tim Manolis, Brian J. McCaffery, Guy McCaskie, M. Timothy Myers, Harry B. Nehls, Thomas E. Rodgers, Stephen M. Russell, Oliver K. Scott, P. David Sloan, Richard W. Stallcup, David Starling, G. Shumway Suttel, Charles Trost, Terence R. Wahl, Roland H. Wauer, Bruce Webb, Dale A. Zimmerman

Layout and cover design by Virginia F. Johnson

Membership dues for individuals and institutions, including subscription to *Western Birds*: Patron, $1000; Life, $250; Supporting, $20 annually; Contributing, $10 annually; Regular, $7.50 annually. Dues and contributions are tax deductible to the extent allowed by law. Back issues are available at $4 for Volume 1 (Numbers 2, 3 and 4; 1970), $6 for Volume 2 (1971), $5 per volume for Volumes 3 through 7, and $7.50 for Volume 8 (1977) and subsequent volumes.

Membership dues, changes of address, undeliverable copies and orders for back issues of *California Birds/Western Birds* should be sent to Phil Schaeffer, 376 Greenwood Beach Road, Tiburon, California 94920. Make checks payable to Western Field Ornithologists.

Send rare bird reports for California to John S. Luther, College of Alameda, 555 Atlantic Avenue, Alameda, CA 94501; see Calif. Birds 2:109-110. For Arizona, send reports to Robert A. Weeden, 4619 E. Avenida Lane, Phoenix, AZ 85018. For Colorado, send reports to CFO Records Committee, Denver Museum of Natural History, City Park, Denver, CO 80205. For Oregon, send reports to Oregon Birds, P. O. Box 5002, Eugene, OR 97403.

Published—December 1, 1979

WESTERN BIRDS ADVERTISING RATES AND SPECIFICATIONS

Full Page	4 x 6-3/4 inches	$60 per issue	$200 per year
Half Page	4 x 3-3/8 inches	$40 per issue	$130 per year
Quarter Page	4 x 1-11/16 inches	$30 per issue	$110 per year

Offset printing, one column per page, 4 inches wide. Glossy, black and white photos are acceptable; half tone screen size: 133 line. Photo-ready copy is requested. If this is not possible, extra charges for typesetting will be made as follows: $15 full page, $10 half page, $5 quarter page. Send copy with remittance to Phil Schaeffer, 376 Greenwood Beach Road, Tiburon, California 94920. Make checks payable to Western Field Ornithologists. A 15% commission is allowed for agencies.

WESTERN BIRDS

Volume 10, Number 2, 1979

A SEABIRD DIE-OFF ON THE WASHINGTON COAST IN MID-WINTER 1976

BILL HARRINGTON-TWEIT, 900 N. Wilson, Olympia, Washington 98506

During the last week of February and the first two days of March 1976, large numbers of dead seabirds, particularly Northern Fulmars *(Fulmarus glacialis)*, Black-legged Kittiwakes *(Rissa tridactyla)* and Common Murres *(Uria aalge)*, washed up on the Pacific coast beaches of Washington and northern Oregon. Lesser numbers of fulmars and kittiwakes were recorded on beaches south into southern California (DeSante 1976). This event received considerable news coverage and the concern of biologists, naturalists and others.

METHODS

Eleven beached bird censuses were received from observers who walked sections of beach of known distance, who were competent at identifying beached bird specimens and who submitted reliable data on oiling. The censuses covered 22 km of beach, representing 7.3% of the coast line. Sunrise Beach, Clatsop Co., the only Oregon beach covered, was censused on 6 March 1976. In Washington, six censuses were taken along Grays Harbor Co. beaches, 2-6 March. Three of these were in the Westport area; the others were taken at Ocean Shores, Pacific Beach and Grenville Bay. The beach at North Cove, Pacific Co., was censused on 6 March. Two censuses were taken at Kalaloch, Jefferson Co., 6 and 7 March, and one on 7 March at Beach Trail No. 6, Olympic National Park, Clallam Co.

On 6 March I picked up 71 birds from a 1.6 km stretch of beach south of the Westport jetty. On 9 March these carcasses were autopsied. Each was checked for fat deposits, stomach contents and for oil or parasites in the digestive tract. The livers were retained for pesticide analysis, and the left wings of all fulmars were retained for molt analysis.

I used a two-criteria analysis of variance to test differences of relative percentage of species involved and percent of each species affected by oil. Fulmar weights were analyzed using the non-parametric rank-sum test. All significant relationships were tested at the 95% level.

RESULTS

MAGNITUDE OF MORTALITY

Counts averaged 42.5 dead birds per km (range 17-93) over the 11 beaches censused. This figure is much higher than the mean number of carcasses per km ($\bar{x}$=8.5; range=1.3 to 28.1) calculated from censuses in the Grays Harbor region during the months of January through March over a five year period, 1974-1978 (Harrington-Tweit unpubl. data). Two beach censuses taken in the Grays Harbor region during mid February 1976 resulted in values of 6.3 and 6.6 carcasses per km (Jack Smith pers. comm.).

The number of birds killed in this die-off is unknown. Coulson et al. (1968) and Hope Jones et al. (1970) speculated that only 20 to 25% of the individuals dying offshore wash in to the beach, even when the mortality occurs fairly close (within 20 km) to shore. Birds that were part of this die-off continued washing up on the beaches in much reduced numbers through 10 March (David DeSante pers. comm.).

SPECIES AFFECTED

Most of the dead birds found were Northern Fulmars. They averaged 63% of the carcasses recovered, significantly higher than any other species (Table 1). Kittiwakes and murres averaged 16% and 10% on the beach censuses; their numbers were never significantly different from each other. Table 2 shows the number of carcasses tallied for all species observed. Of these, only the White-winged Scoter *(Melanitta deglandi)* was found in large enough numbers (22) to be considered in any detail. Table 3 shows data on the incidence of oiling for the major species.

Northern Fulmar

Oil was found on the plumage of 43% of the fulmars examined. Terence Wahl (pers. comm.) noted on his censuses of northern beaches, where the highest percentages of oiled fulmars were recorded, that the pattern of oiling on many fulmars suggested they were dead when oiled. Patches of oil adhered to the uppersides, with tiny spots all over the plumage, indicating that they floated through oil upside down. Since virtually no oiling was evident among the large sample of Oregon birds, this figure is likely an overestimation of oiling mortality.

All fulmars autopsied were finishing wing molt. Of the 35 wings examined, 80% had fresh primaries and the remainder were growing the outer 2 or 3 primaries; 69% had replaced over half their secondaries, 86% had fresh tertiaries and 71% had retained less than a third of their old wing coverts. Light phased birds constituted 4% of the sample. I was unable to find any mention of a molt at this season in literature. There was a significant sexual dimorphism in weight. Males were heavier ($\bar{x}$=609.25 gm, s=±77.9, range=485 to 727 gm, n=16) than females ($\bar{x}$=479.1 gm, s=±50.0, range=395 to 582 gm, n=29). Average post-

breeding weight for males of this subspecies *(F. g. rodgersii)* is 671.3 gm; this value seems to be unknown for females as is prebreeding weight for either sex (Palmer 1962). No fat deposits were noted on any of the birds.

Of the 33 stomachs examined, 61% held either squid beaks or lenses. A few held as many as five beaks. Other items included variously colored plastic chips (irregular rectangles approximately 5 mm on a side and 1 mm thick), found in 39% of the stomachs, pebbles of approximately the same size, feathers and small pieces of bone. Only two stomachs contained oil or internal parasites. More females than males were in the autopsied sample (females=54.7%, males=30.2% and 15.1% were unknown, n=35). All of the females had developing ovaries.

A few fulmars were apparently wrecked inland during the die-off. On 29 Feburary a live fulmar was found in Montesano, Grays Harbor Co., about 40 km inland (Jack Smith pers. comm.). In addition, I found a long-dead fulmar on 17 April at Elma, Grays Harbor Co. (about 56 km inland), which I assume was blown inland in late February. Five fulmars were seen from shore at the mouth of Grays Harbor on 28 February (Glen and Wanda Hoge pers. comm.), along with three other species of tubenoses: 30 Sooty Shearwaters *(Puffinus griseus)*, 1 Mottled (Scaled) Petrel *(Pterodroma inexpectata)* and 6 Fork-tailed Storm-Petrels *(Oceanodroma furcata)*. Tubenoses of any species are very rarely observed in winter from shore in Washington.

Black-legged Kittiwake

Kittiwake numbers fluctuated greatly between censuses (note the very high standard deviation in Table 1), as did the percentage of oiling observed (Table 3). At least some appeared to have been oiled after death; the value of 66% (Table 3) is thus a high estimate of oil-caused mortality. Autopsy data were inconclusive as the sample size was too small. The only data on age and molt were recorded on the Oregon beach where Harry Nehls (pers. comm.) found that of 31 birds, 9.7% were first winter, 74.2% were second winter and the remaining 16.1% were adults. Most of the birds were replacing outer primaries; the remainder had completed molt.

Common Murre

Murre carcasses were evenly distributed along the coast. A high percentage (95%) were oiled (Table 3); this is significantly higher than for any other species analyzed except White-winged Scoter. A minority (33.8%) of the 74 murres checked were still in winter plumage; the majority had finished the prenuptial molt. I have no useful autopsy data on these birds.

Other species

Aside from the 22 badly oiled White-winged Scoters, only small numbers of other species were found. The numbers recorded for each

Table 1. Mean, standard deviation and range of the percentages of fulmars, kittiwakes and murres recorded on 11 beach censuses taken on the northern Oregon and Washington coast in early March 1976 following a seabird die-off.

	% NORTHERN FULMAR	% BLACK-LEGGED KITTIWAKE	% COMMON MURRE
Mean ($\bar{x}$)	63.0	16.4	10.1
Standard deviation (s)	±20.4	±20.3	±6.9
Range	83.5-10.2	69.2-0	22.2-3.7

Table 2. Summary of carcasses found on 11 beach censuses taken on the northern Oregon and Washington coast in early March 1976 following a seabird die-off. Total number includes individuals for which presence or absence of oil was not recorded.

SPECIES	Oiled	Unoiled	Total
Arctic Loon *(Gavia arctica)*	1	2	3
Red-necked Grebe *(Podiceps grisegena)*	1		1
Western Grebe *(Aechmophorus occidentalis)*	4	9	13
Northern Fulmar *(Fulmarus glacialis)*	157	263	570
Mottled (Scaled) Petrel *(Pterodroma inexpectata)*	1	1	2
Fork-tailed Storm-Petrel *(Oceanodroma furcata)*		1	2
Leach's Storm-Petrel *(O. leucorhoa)*			1
Storm-Petrel (sp.)	1		1
White-winged Scoter *(Melanitta deglandi)*	22		22
Surf Scoter *(M. perspicillata)*	1	2	3
Duck (sp.)	1		1
Glaucous-winged Gull *(Larus glaucescens)*	1	1	2
Western Gull *(L. occidentalis)*		2	2
Mew Gull *(L. canus)*	4	1	5
Larus sp.	6	1	7
Black-legged Kittiwake *(Rissa tridactyla)*	64	22	105
Common Murre *(Uria aalge)*	85	5	90
Cassin's Auklet *(Ptychoramphus aleuticus)*	4		4
Rhinocerous Auklet *(Cerorhinca monocerata)*	5		5
Tufted Puffin *(Lunda cirrhata)*	4		4
Unidentified birds	8		13

Table 3. Mean, standard deviation and range for the percentage of individuals with oil on their plumage of fulmars, scoters, kittiwakes and murres found on 11 beach censuses taken on the northern Oregon and Washington coast in early March 1976 following a seabird die-off.

	NORTHERN FULMAR	BLACK-LEGGED KITTIWAKE	COMMON MURRE	WHITE-WINGED SCOTER
Mean ($\bar{x}$)	43.2	66.0	95.3	90.0
Standard deviation (s)	±35.8	±35.5	±10.1	±31.6
Range	100-10	100-0	100-72.7	100-0

are listed in Table 2. As explained for fulmars and kittiwakes, it appeared that not all were oiled when alive. The majority, especially the loon, grebes and gulls, were probably not involved in the die-off, as they are found in comparable numbers on winter beached bird censuses (Harrington-Tweit unpubl. data).

PESTICIDE LEVELS

Eight livers were saved for pesticide analysis. The four fulmar livers had DDE levels ranging from 0.50 to 3.2 ppm (all measurements are wet weight). DDE levels for the two murres were 4.4 and 5.0 ppm, for the Arctic Loon *(Gavia arctica)* 1.1 ppm, and the Western Grebe *(Aechmophorus occidentalis)* 3.4 ppm. PCBs were present in all specimens with the highest level, 19.0 ppm, in the grebe and the lowest, 2.0 ppm, in a fulmar. There is no indication that pesticide residues are physiologically harmful at these levels (Steve Herman pers. comm.). For information on concentrations found in other seabirds in the north Pacific see Risebrough et al. (1967, 1968) and Fisher (1973); see Bogan and Bourne (1972) for information relating to Atlantic seabirds.

ENVIRONMENTAL DATA

Consistently strong onshore winds occurred throughout February and were strongest late in the month. The wind blew southwesterly on 71.4% of the days at an average 30 km/h. Daily wind velocity during the last week of February averaged 38.3 km/h (range 29 to 47 km/h) predominantly from the southwest (National Weather Service data, U.S. Coast Guard reporting station, Westport, Grays Harbor Co., WA). These strong winds differed from the usual February weather. Values for February averaged over a 5-year period (1953 to 1958) at Hoquaim, Grays Harbor Co., indicate that winds are southwesterly (including WSW and SSW) 20.3% of the days at a velocity of 26.2 km/h (Pacific Northwest River Basins Commission 1968).

Sea surface temperatures over the continental shelf off the Washington coast average 9°C during January and February (calculated for the years 1961-1974). In early January 1976 the sea surface temperature in this area was 9°C, until a mass of colder water started pushing south along the coast. This 8°C water reached the mouth of the Columbia River by the end of January, and was bounded on the west by warmer water at the edge of the shelf. This situation remained unchanged until late February, when the colder water pushed further west (data from Southwest Fisheries Center, National Marine Fisheries Service, NOAA). However, this summary may not be entirely accurate. David G. Ainley (pers. comm.) found that off central California there was a brief period of higher sea surface temperatures in late February which was not reflected in the NOAA data.

On 2 March two observers from the Ecological Services Division, U.S. Fish and Wildlife Service, flew the coastline from Ilwaco, Pacific Co., Washington, north to LaPush, Clallam Co. They reported fairly heavy, broken patches of crude oil within a mile of shore from Ilwaco to Copalis, Grays Harbor Co. (Gary Shaw pers. comm.). North of Copalis the patches were fewer and smaller. I found very few traces of oil on the beach during the three censuses I conducted in the Westport area on 6 March. The amount of oil further offshore at this time is unknown.

DISCUSSION

Periods of high seabird mortality, often in conjunction with storms, have been reported fewer than 10 times in the last 80 winters along the Washington coast (Harrington-Tweit in prep.). But winter storms with wind velocities of 80 to 110 km/h are reported almost every winter in this area (U.S. Department of Agriculture 1972). Obviously not every winter gale triggers a die-off of the magnitude reported here. Seabirds that winter on the north Pacific must be able to cope with high winds. Therefore other factors, possibly in conjunction with winter storms, must be involved in the die-offs. These could be environmental pollutants, food suppy and/or a bird's physiological state.

In this instance, mortality of fulmars and at least half that of kittiwakes was not due to oil. The White-winged Scoter and alcid mortality is definitely attributable to oil. The effect of pesticide residues present in these birds was probably negligible. All of the fulmars and kittiwakes had either just completed or were undergoing a molt; female fulmars, possibly some kittiwakes and most male fulmars were also developing into breeding condition.

Sea surface temperatures can be used as a crude indicator of food availability. Both the kittiwakes and the fulmar are cold water feeders (Ainley 1976); they should not have been affected by the sea surface temperatures reported, if accurate, during this time. Ainley established that the brief period of higher surface temperatures, not shown by the NOAA data, coincided with the die-off (pers. comm.). Researchers at the Moss Landing Marine Laboratories found that captured prey species diversity declined during the die-off, and that a majority of the carcasses examined had empty stomachs (Lynne Krasnow pers. comm.). From this Ainley inferred that the warming spell reduced the amount of food available to fulmars and kittiwakes, causing the die-off. Similar circumstances may have prevailed off Oregon and Washington.

As Kinsky (1968) points out, seabird mortality can occur very selectively, affecting only some of the species or populations found offshore at the time. He observed discrepancies between the size and species composition of the known offshore population and the sample of birds wrecked by a severe cyclone. Most of the discrepancies hinged upon whether or not a population or species was molting at the time of

the wreck. Mortality was selective in this die-off. Both Sooty and Short-tailed shearwaters *(Puffinus griseus* and *P. tenuirostris)* occur offshore in winter (Ainley 1976, Wahl 1975), and Glaucous-winged and Herring gulls *(Larus glaucescens* and *L. argentatus)* are common offshore (Sanger 1973), yet none of these were involved in the die-off.

Both physical and behavioral differences could account for the selectivity. Kittiwakes and fulmars were molting and many individuals were entering breeding condition. Wintering shearwaters are all non-breeding individuals and are not in molt at this time (Palmer 1962). Adult gulls may be entering breeding condition in February, but there should be no gulls in molt at this time (Dwight 1925). Fulmars and kittiwakes are both surface feeders, whereas Sooty Shearwaters are capable of diving under the surface (Terence Wahl pers. comm.), and gulls are able to feed in the littoral zone and inland when they cannot find surface food in the pelagic zone. It is still quite unclear how these behavioral and physiological differences interact with environmental conditions to produce selective mortality.

The species affected by oiling present a different problem. Oiled grebes and diving ducks, two groups usually affected by coastal oil spills (Smail et al. 1972), were relatively scarce. Instead, most of the birds affected were offshore species, the alcids. The oil observed onshore on 2 March had little affect on the birds in this zone; certainly very few appeared on the beaches. Oil was apparently spilled or dumped in late February in an area used primarily by murres. The consistent onshore winds may have served to blow more carcasses ashore than would have otherwise appeared on the beaches. This factor makes it difficult to assess the number of birds affected, but it was obviously substantial. The high number of oiled White-winged Scoters compared to other inshore feeders is another case of selective mortality, currently inexplicable.

SUMMARY

Results of 11 beached bird censuses taken on the coast of northern Oregon and Washington after a seabird die-off in late February 1976 are summarized. Northern Fulmar, Black-legged Kittiwake and Common Murre were the most numerous species found. Several other seabirds that winter offshore were not involved. Some behavioral and physiological differences that could account for the selective mortality are discussed. Murre mortality was caused by oiling; the source of the oil is unknown. Beached bird counts averaged 42.5 per kilometer, of which 63% were fulmars, 16% were kittiwakes and 10% were murres. Data obtained from autopsying fulmar carcasses provided information on completion of a primary molt at this season, a sexual dimorphism in weight and occurrence of plastic particles in the digestive tract. Pesticide residue levels are summarized for four species of seabirds found dead on the beaches.

ACKNOWLEDGMENTS

This paper is the result of many people's input and help. I am indebted to Harry Nehls, Jack Smith and Terence Wahl for censusing beaches and contributing comments, ideas and support. Dave DeSante did a later census and sent supplemental information. Dave Ainley, Alyn Duxbury, Glen and Wanda Hoge, Lynne Krasnow, Gary Shaw and Jay Watson provided environmental data and observations. John Bulger, Dave Hayward, Katie and Kirk LaGory, Mark Rutherford and others at The Evergreen State College helped autopsy carcasses, making a tedious, malodorous job less unpleasant. Steve Herman procured funds for the pesticide analysis; John Peard did the lab work. Dave Ainley, John Bulger, Bob Sluss and Terence Wahl read and criticized drafts of this paper.

LITERATURE CITED

Ainley, D. G. 1976. The occurrence of seabirds in the coastal region of California. West. Birds 7:33-68.

Bogan, J. A. and W. R. P. Bourne. 1972. Organochlorine levels in Atlantic seabirds. Nature 240:358.

Coulson, J. C., G. R. Potts, I. R. Deans and S. M. Fraser. 1968. Exceptional mortality of Shags and other seabirds caused by paralytic shellfish poisoning. Brit. Birds 61:381-404.

DeSante, D. 1976. The changing seasons. Am. Birds 30:677-689.

Dwight, J. 1925. The gulls (Laridae) of the world; their plumages, moults, variations, relationships and distribution. Bull. Am. Mus. Nat. Hist. 52:63-408.

Fisher, H. I. 1973. Pollutants in North Pacific albatrosses. Pac. Sci. 27:220-225.

Hope Jones, P., G. Howells, E. I. S. Rees and J. Wilson. 1970. Effect of 'Hamilton Trader' oil on birds in the Irish Sea in May 1969. Brit. Birds 63:97-110.

Kinsky, F. C. 1968. An unusual seabird mortality in the southern North Island (New Zealand) April, 1968. Notornis 15:143-155.

Pacific Northwest River Basins Commission, Meteorology Committee. 1968. Climatological handbook, Columbia basin states, vol. 3. Vancouver, Washington.

Palmer, R. 1962. Handbook of North American birds, vol. 1. Yale Univ. Press, New Haven.

Risebrough, R. W., D. B. Menzel, D. J. Martin, Jr. and H. S. Olcott. 1967. DDT residues in Pacific sea birds: marine food chains. Nature 216:589-590.

Risebrough, R. W., P. Rieche, D. B. Peakall, S. G. Herman and M. N. Kirven. 1968. Polychlorinated biphenyls in the global ecosystem. Nature 220:1098-1102.

Sanger, G. 1973. Pelagic records of Glaucous-winged and Herring gulls in the north Pacific Ocean. Auk 90:384-393.

Smail, J., D. G. Ainley and H. Strong. 1972. Notes on birds killed in the 1971 San Francisco oil spill. Calif. Birds 3:25-32.

U. S. Department of Agriculture. 1972. Washington climate for these counties: Clallam, Grays Harbor, Jefferson, Pacific, Wahkiakum. Cooperative Extension Service, Wash. State Univ., Pullman.

Wahl, T. R. 1975. Seabirds in Washington's offshore zone. West. Birds 6:117-134.

Accepted 23 March 1979

COLORADO FIELD ORNITHOLOGISTS OFFICIAL RECORDS COMMITTEE REPORT 1976-1977

Robert Andrews, c/o Curator of Zoological Collections, Denver Museum of Natural History, City Park, Denver, Colorado 80205

This report contains the results of the work done by the Colorado Field Ornithologists Official Records Committee in 1976 and 1977. All records reviewed appear below with the ORC file number and names of observers who submitted documentation. Activities of the ORC from its inception in May 1972 until 1976 have been reported by Reddall (1973a, b, c, 1974a, b, 1975, 1976a, b). The list of Colorado birds as recognized by the ORC stands at 427 species.

The ORC currently consists of six members: Robert Andrews (Chairman), David Griffiths, Edward Hollowed, Harold Holt, Peter Moulton and Richard Stransky. All ORC records are deposited in the Department of Zoological Collections, Denver Museum of Natural History.

The ORC desires documentation for the following species (in addition to any species unrecorded from Colorado):

Red-throated Loon, Red-necked Grebe, Brown Pelican, Olivaceous Cormorant, Anhinga, Little Blue Heron, Reddish Egret, Louisiana Heron, Wood Stork, Glossy Ibis, Roseate Spoonbill, Trumpeter Swan, Brant, European Wigeon, Harlequin Duck, Common Eider, Black Scoter, Swallow-tailed Kite, Red-shouldered Hawk, Gyrfalcon, Whooping Crane (except San Luis Valley), King Rail, Yellow Rail, Common Gallinule, American Woodcock, Eskimo Curlew, Sharp-tailed Sandpiper, Short-billed Dowitcher, Buff-breasted Sandpiper, Hudsonian Godwit, Ruff, Red Phalarope, Pomarine Jaeger, Parasitic Jaeger, Long-tailed Jaeger, Lesser Black-backed Gull, Thayer's Gull, Laughing Gull, Little Gull, Ivory Gull, Black-legged Kittiwake, Caspian Tern, Ancient Murrelet, White-winged Dove, Groove-billed Ani, Barred Owl, Spotted Owl, Boreal Owl, Whip-poor-will, Lesser Nighthawk, Anna's Hummingbird, Rivoli's Hummingbird, Blue-throated Hummingbird, Olivaceous Flycatcher, Black Phoebe, Alder Flycatcher, Eastern Wood Pewee, Vermilion Flycatcher, Purple Martin (east slope only), Short-billed Marsh Wren, Long-billed Thrasher, Bendire's Thrasher, Gray-cheeked Thrush, Sprague's Pipit, Phainopepla, White-eyed Vireo, Yellow-throated Vireo, Swainson's Warbler, Blue-winged Warbler, Lucy's Warbler, Cape May Warbler, Hermit Warbler, Cerulean Warbler, Yellow-throated Warbler, Pine Warbler, Prairie Warbler, Louisiana Waterthrush, Kentucky Warbler, Connecticut Warbler, Canada Warbler, Painted Redstart, Eastern Meadowlark (except at Red Lion State Wildlife Area), Scott's Oriole, Great-tailed Grackle (except San Luis Valley), Hepatic Tanager, Painted Bunting, Le Conte's Sparrow, Sharp-tailed Sparrow, Golden-crowned Sparrow, Smith's Longspur.

PART I – SPECIES ADDED TO THE COLORADO LIST

KING RAIL *(Rallus elegans)*. One (N-17-68) at the C.F. & I. Lakes near Pueblo, Pueblo Co. 12 Jun-3 Jul 1976 (DAG, RA, NM, PM, photos by JS, VT) (Figure 1). For complete details see Griffiths (1976).

SHARP-TAILED SANDPIPER *(Calidris acuminata)*. One immature (N-19-62) at Prince Lake No. II, 1 mile N of Lafayette, Boulder Co. 26 Oct-7 Nov 1975 (BW, JC, RA, HH, AM, JR, photos by HH, BW). Webb and Conry (1979) present details.

RUFF *(Philomachus pugnax)*. One individual, possibly an immature male (N-19-77) 1.5 miles NE of Prospect Res., Weld Co. 30 May-5 Jun 1976 (JR, RA, MOS, photos by WL).

LESSER BLACK-BACKED GULL *(Larus fuscus)*. One adult (N-23-75) Lake Sangraco, Adams Co. 12 Dec-1 Jan 1977 (BW, RA, JR, WWB, photos by DMNH, HH). For details see Webb and Conry (1978).

GROOVE-BILLED ANI *(Crotophaga sulcirostris)*. One (N-26-72) Bonny Reservoir State Recreation Area, Yuma Co. 3 Oct 1976 (PG, MM, BW, photos by BW). For complete details see Webb (1976). (Webb presents an account and photograph of one observed west of Pueblo Res., Pueblo Co. 6 Jul 1975 by Jim Dennis, the first record from Colorado chronologically.)

PART II – REPORTED SPECIES NOT ADDED TO THE COLORADO LIST

BARNACLE GOOSE *(Branta leucopsis)*. Two (N-8-69) Frying Pan River at Elk Willow Campground near Basalt, Eagle Co. 26-27 Oct 1975. Photo on file. Apparently imported into the area and released.

WHITE-TAILED HAWK *(Buteo albicaudatus)*. One (N-10-71) Lakewood, Jefferson Co. 12 May 1976.

BLACK RAIL *(Laterallus jamaicensis)*. One (N-17-65) Red Lion State Wildlife Area, Logan Co. 20 Apr 1976. One (N-17-76) near Ridgway, Ouray Co. 27 Sept 1976.

RUBY-THROATED HUMMINGBIRD *(Archilochus colubris)*. One (N-31-67) Bonny Reservoir State Recreation Area, Yuma Co. 5-6 May 1976.

PART III – SPECIES DELETED FROM THE COLORADO LIST

BLACK BRANT *(Branta nigricans)*. Removed due to the taxonomic decision of the AOU (1976).

MEXICAN DUCK *(Anas diazi)* and MOTTLED DUCK *(Anas fulvigula)*. These species are deleted because the specimens from Colorado (DMNH 353, 20557, 24392, 25374, 33794) have been examined by John R. Hubbard of the New Mexico Department of Game and Fish and determined not to be valid examples of these species (Betsy Webb pers. comm.).

RUFFED GROUSE *(Bonasa umbellus)*. All ORC material was examined by Clait E. Braun of the Colorado Division of Wildlife, who considered none of the reports to be acceptable, and the ORC concurs.

ICELAND GULL *(Larus glaucoides)*. Deleted because the Colorado specimen (DMNH 18886) has been determined to be a Thayer's Gull *(L. thayeri)* by Roxanne Laybourne of the National Museum of Natural History (Betsy Webb pers. comm.).

PART IV – REPORTS OF RARE SPECIES

The following is a summary of the 152 records received and processed by the ORC in 1976 and 1977. Some species included are no longer on the list of species for which the ORC solicits documentation.

CLASS A RECORDS – Records in which the submitted documentation supports the stated identification.

ARCTIC LOON *(Gavia arctica)*. Two (1-76-16) Prewitt Res., Washington Co. 16 Nov 1975 (SB). One (1-76-105) Sloan's Lake, Denver Co. 22-23 Oct 1976 (VR). There are 23 records for Colorado, and the species is now considered a regular and expected fall migrant.

RED-THROATED LOON *(G. stellata)*. One (1-76-106) Sloan's Lake, Denver Co. 27 Oct 1976 (VR, RA, JRC, JR). Fourth state record.

GREEN HERON *(Butorides striatus)*. One (5-76-21) Durango, La Plata Co. 19 Jan-26 Apr 1976 (RWS). First winter report.

LITTLE BLUE HERON *(Florida caerulea)*. One (5-77-21) near bridge over Yampa R. on Highway 318 near Maybell, Moffat Co. 23 May 1973 (MS). Two (5-76-56) 4 miles N of junction of I-76 and Kersey Road, Weld Co. 31 May 1976 (HH-photos on file). One (5-77-38) Beebe Draw Gun Club at LaSalle, Weld Co. 26 Apr, 20 May 1977 (WPG). One (5-77-55) McCoy, Eagle Co. 15-16 May 1977 (ME). There are now 15 state records.

CATTLE EGRET *(Bubulcus ibis)*. One (5-76-114) Boulder Res., Boulder Co. 31 Oct 1976 (ET). There are now 25 state records.

LOUISIANA HERON *(Hydranassa tricolor)*. One (5-77-39) Masters, Weld Co. 22-31 May 1977 (GM). One (5-77-48) Pueblo Res., Pueblo Co. 30 May 1977 (CK). One (5-77-47) Wellington, Larimer Co. 31 May 1977 (MJ). Sixth-eighth state records.

ROSS' GOOSE *(Chen rossii)*. One (8-76-11) Valmont Res., Boulder Co. 20-21 Dec 1975 (BK, PJ). There are now 28 state records.

EUROPEAN WIGEON *(Anas penelope)*. One male (8-76-34) Barr Lake State Park, Adams Co. 3 Apr 1976 (RA). Seventh state record (all but one are from early April-early May).

HARLEQUIN DUCK *(Histrionicus histrionicus)*. One female or immature (8-76-108) Barr Lake State Park, Adams Co. 24 Oct 1976 (RA, TS). Sixth state record (1st since 1940).

WHITE-WINGED SCOTER *(Melanitta deglandi)*. Three females or immatures (8-77-15) Totton Res., near Cortez, Montezuma Co. 23 Oct 1976 (RWS). There is only one published record from the west slope: five on Mesa L., Mesa Co. in Oct 1912 (Bailey and Niedrach 1965, Davis 1969).

SURF SCOTER *(M. perspicillata)*. One male (8-76-84) Marston Res., Jefferson Co. 14 May 1976 (VT). Twenty-ninth state record.

BLACK SCOTER *(M. nigra)*. Three females or immatures (8-76-100) Cherry Creek Res., Arapahoe Co. 12 Oct 1976 (JR, VR). Two females or immatures (8-76-95) Valmont Res., Boulder, Boulder Co. 23 Oct 1976 (JR). Two females or immatures (8-76-110) Cloverleaf Res., Boulder Co. 5-6 Nov 1976 (JR, TV). Eleventh-thirteenth state records.

RED-SHOULDERED HAWK *(Buteo lineatus)*. One adult (10-76-22) Bonny Res., Yuma Co. 15 Feb 1976 (MM) (only mid-winter record in Colorado). One adult (10-76-47) Bonny Res., Yuma Co. 5 May 1976 (JR). One immature (10-76-97) Barr Lake State Park, Adams Co. 27 Sep 1976 (RA). One adult (10-77-73) on Highway 14 at Weld-Larimer Co. line 2 Sep 1977 (BM). Webb (1978) has reviewed the status of this bird in Colorado.

PIPING PLOVER *(Charadrius melodus)*. Two (18-77-20) Bonny Res., Yuma Co. 23 Apr 1977 (MJ, MM, JP, JS). Twenty-third state record.

SHORT-BILLED DOWITCHER *(Limnodromus griseus)*. One (19-76-8) Boulder, Boulder Co. 4 Oct 1975 (RA). Four (19-77-6) Union Res., Weld Co. 23-24 May 1976 (PM, BW). One (19-76-89) Jackson Res., Morgan Co. 6 Sept 1976 (JR). Sixth-eighth state records.

BUFF-BREASTED SANDPIPER *(Tryngites subruficollis)*. One (19-76-102) Barr Lake, Adams Co. 22-24 Aug 1976 (RA, DAG). One (19-77-67) Jackson Res., Morgan Co. 4 Sep 1977 (RA, JR). One (19-77-20) Cherry Creek Res., Arapahoe Co. 7 Sep 1977 (TM). Fourteenth-sixteenth state records (all but three are from late August and early September).

HUDSONIAN GODWIT *(Limosa haemastica)*. One (19-76-49) Red Lion State Wildlife Area, Logan Co. 8 May 1976 (JR). One (19-76-57) Red Lion State Wildlife Area, Logan Co. 30-31 May 1976 (HH, WL, photos on file-HH). Seventh and eighth state records (all but one in spring, mostly in late May).

RED PHALAROPE *(Phalaropus fulicarius)*. One (21-76-91) Barr Lake, Adams Co. 11-13 Sep 1976 (RA, JR). Eighth state record. Half of all state records are from 1975 and 1976.

JAEGER SP. *(Stercorarius* sp.*)*. Because most observations of jaegers in Colorado involve immatures, which are often very difficult to identify even by someone with considerable field experience, it is felt that under most circumstances inland observers simply do not have the necessary expertise or resources to identify most immature jaegers. Therefore, as a general rule, records of immature jaegers will be treated as jaeger sp. One (22-76-28) Cherry Creek Res., Arapahoe Co. 27 Feb 1976 (MOS). One (22-76-92) Barr Lake, Adams Co. 11 Sep 1976 (RA). One (22-76-96) Barr Lake, Adams Co. 17-25 Sep 1976 (RA). One (22-76-113) Bonny Res., Yuma Co. 6 Nov 1976 (MM). One (22-76-117) Prewitt Res., Washington Co. 24 Nov 1976 (JR). One (22-76-123) Marston Res., Jefferson Co. 11 Dec 1976 (TG). One (22-77-65) Union Res., Weld Co. 4 Sep 1977 (RA, JR). There are now 31 records of jaegers (including all species and all plumages) from Colorado.

PARASITIC JAEGER *(S. parasiticus)*. One adult (22-77-67) Cherry Creek Res., Arapahoe Co. 3 Aug 1977 (TM). One adult (22-77-59) Union Res., Weld Co. 13-14 Aug 1977 (RA, MM, PM). One adult (22-77-71) Chatfield Res., Douglas Co. 17 Sep 1977 (HK).

THAYER'S GULL *(Larus thayeri)*. One immature (23-76-7) Centennial Park, Englewood, Arapahoe Co. 20 Dec 1975 (JR). One immature (23-76-29) Cherry Creek Res., Arapahoe Co. 22 Feb-7 Mar 1976 (JR). One immature (23-76-116) Prewitt Res., Washington Co. 24 Nov 1976 (JR). One adult (23-76-130) Lake Sangraco, Adams Co. 13 Dec 1976 (RA). One immature (23-77-70) Cherry Creek Res., Arapahoe Co. 5 Feb 1977 (JR). One subadult (23-77-13) Cherry Creek Res., Arapahoe Co. 5-25 Mar 1977 (JR). There are now 22 records from Colorado.

LAUGHING GULL *(L. atricilla)*. Two winter adults (23-76-4) Union Res., Weld Co. 1 Nov 1975 (RA, JR). One adult (23-76-79) C. F. & I. Lakes, Pueblo Co. 7 Jun 1976 (DAG). One winter adult (23-76-112) Union Res., Weld Co. 23 Oct 1976 (JR). One adult (23-77-19) Cherry Creek Res., Arapahoe Co. 17 Apr 1977 (TM). There are now 14 state records, and the species is recorded annually, mostly in spring.

LITTLE GULL *(L. minutus)*. One adult (23-76-48) Jumbo Res., Logan Co. 8 May 1976 (JR). Three immatures (23-76-62, 23-77-5, 23-77-60) Union Res., Weld Co. 15 May-27 Jun 1976 (RA, PM, JR, CW, photos on file-PM). Second and third state records.

BLACK-LEGGED KITTIWAKE *(Rissa tridactyla)*. One immature (23-76-118) Union Res., Weld Co. 27 Nov 1976 (JR). Seventh state record; four of the seven are fall records.

WHITE-WINGED DOVE *(Zenaida asiatica)*. One (25-77-37) 20 miles W of Grover, Weld Co. 3 May 1977 (SA, RP, VHR, VS). Eighth state record.

SPOTTED OWL *(Strix occidentalis)*. One (28-76-90) 1 mile W of Silverthorne, Summit Co. 5 Sep 1976 (HK, UK). Thirteenth state record.
SWIFT SP. *(Chaetura* sp.*)*. One (30-77-4) Ridgway, Ouray Co. 26 Sep 1976 (JRG, HK). Fourth record of a *Chaetura* swift from western Colorado (Davis 1969); none have been identified to species.
BLUE-THROATED HUMMINGBIRD *(Lampornis clemenciae)*. Five females or immatures (31-76-1) 7 miles N of Durango, La Plata Co. 7 Sep 1975 (EF, RWS). Fifth state record.

COMMON FLICKER *(Colaptes auratus)*. One intergrade (33-77-3) Grand Junction, Mesa Co. 2-20 Jan 1977 (HA). Davis (1969) records only one Yellow-shafted or intergrade flicker from western Colorado (Grand Junction-17 Dec 1966).
RED-HEADED WOODPECKER *(Melanerpes erythrocephalus)*. One immature (33-76-124) 2 miles S of Breen, La Plata Co. 19-28 Oct 1976 (DS). One immature at Hotchkiss, Delta Co. from 8 Dec 1973-9 Jan 1974; this is only the third published record from western Colorado (Davis 1969), the other two being from Grand Co. in 1877 and Routt Co. in 1908.

LADDER-BACKED WOODPECKER *(Picoides scalaris)*. One female (33-76-30) Colorado Springs, El Paso Co. 12-19 Feb 1976 (DB-photo on file). Rather rare in El Paso Co. One male (33-76-36) Boulder, Boulder Co. 27 Mar 1976 (HPC). There appears to be only one other record from the Platte R. drainage in Colorado: one at Red Rocks, Jefferson Co. 20 Sep 1964 (Bailey and Niedrach 1965, Holt 1975).
EASTERN PHOEBE *(Sayornis phoebe)*. One (34-76-16) Boulder, Boulder Co. 21 Dec 1975 (CJ). Apparently the only report in Colorado between 1 Oct and 11 Mar (Bailey and Niedrach 1965, Holt 1975).
VERMILION FLYCATCHER *(Pyrocephalus rubinus)*. One female (34-76-19) Pastorius Res., La Plata Co. 20 Sep 1975 (AN). One female (34-77-18) La Junta, Otero Co. 23 Mar 1977 (BT). Sixteenth and seventeenth state records (most are in spring or fall).
PURPLE MARTIN *(Progne subis)*. One male (36-76-41) Barr Lake, Adams Co. 29 Apr 1976 (RA). One female (36-76-55) 16 miles SW of Ft. Morgan, Morgan Co. 25 May 1976 (JCR). Eighth and ninth east slope records.
PYGMY NUTHATCH *(Sitta pygmaea)*. One (39-76-103) Barr Lake, Adams Co. 4 Sep 1976 (RA). Second plains record, the first being two at Barr Lake 18-25 Sep 1960.

HOUSE WREN *(Troglodytes aedon)*. One (42-76-125) Littleton, Arapahoe Co. 20 Dec 1975 (RA). Only two other winter reports from Colorado: one in Jefferson Co. 19 Feb 1900 and one in Arapahoe Co. 28 Dec 1934 (Bailey and Niedrach 1965).
SHORT-BILLED MARSH WREN *(Cistothorus platensis)*. One (42-76-39) Bonny Res., Yuma Co. 6-7 May 1976 (JR). One (42-76-81) Jumbo Res., Logan Co. 16 May 1976 (NM). One (42-77-17) C. F. & I. Lakes, Pueblo Co. 26 Mar 1977 (AB, EB). Eleventh-thirteenth state records, the majority being spring records from the northeastern part of the state.
CANYON WREN *(Catherpes mexicanus)*. One (42-76-104) Barr Lake, Adams Co. 22 Aug 1976 (RA). There appear to be no other records from a plains locality (Bailey and Niedrach 1965).
CURVE-BILLED THRASHER *(Toxostoma curvirostre)*. One (42-76-80) 2 miles N of Silverthorne, Summit Co. 30 Apr-7 May 1976 (LB-photo on file). One (42-76-54) Bonny Res., Yuma Co. 18 May 1976 (HG, SW). Third and fourth records from outside the Arkansas River valley, the former being the first mountain record.
VARIED THRUSH *(Ixoreus naevius)*. One male (44-77-16) Ridges Basin Rd. near Bodo Wildlife Area, La Plata Co. 21 Nov 1976 (RWS). Neither Bailey and Niedrach (1965) nor Davis (1969) mentions any west slope record of this species.

GRAY-CHEEKED THRUSH *(Catharus minimus)*. One (44-76-73) Boulder, Boulder Co. 13 May 1976 (WL). One (44-76-67) Barr Lake, Adams Co. 16 May 1976 (RA). One (44-76-72) Crow Valley Park, Weld Co. 16 May 1976 (WL). One (44-76-85) Boulder,

Boulder Co. 16 May 1976 (FH). One (44-76-58) Cherry Creek Res., Arapahoe Co. 17 May 1976 (MOS). One (44-76-75) Jumbo Res., Logan Co. 29 May 1976 (WL). Eleventh-sixteenth state records (virtually all in May).

SPRAGUE'S PIPIT *(Anthus spragueii)*. Two (46-76-51) Lake Estes, Larimer Co. 28 Apr 1976 (WR). One (46-76-107) Table Mtn., Boulder Co. 23 Aug 1976 (FH). Tenth and eleventh state records.

WHITE-EYED VIREO *(Vireo griseus)*. One (51-76-44) Two Buttes Res., Baca Co. 1 May 1976 (RA, NM). Fourth state record (three in May, one in September).

YELLOW-THROATED VIREO *(V. flavifrons)*. One (51-77-64) Colorado Springs, El Paso Co. 24 Aug 1977 (WH). Tenth state record (first fall record, all others late April-late May).

PHILADELPHIA VIREO *(V. philadelphicus)*. One (51-76-86) Boulder, Boulder Co. 25 May 1976 (FH). Nineteenth state record (14 are fall records).

PROTHONOTARY WARBLER *(Protonotaria citrea)*. One male (52-76-43) Boulder, Boulder Co. 8-12 May 1976 (PE, RA, NM, photo on file-NM). One or two males (52-77-27) Ft. Collins, Larimer Co. 7 May 1977 (SHB, DH, WLH, DV). Sixteenth and seventeenth state records (of which 14 are in spring, 12 in May).

WORM-EATING WARBLER *(Helmitheros vermivorus)*. One (52-76-45) Boulder, Boulder Co. 8 May 1976 (MM, JS, photo on file-JS). One (52-76-79) Boulder, Boulder Co. 20 May 1976 (RV). Twenty-fifth and twenty-sixth state records (all but five are spring, late April-mid-May).

GOLDEN-WINGED WARBLER *(Vermivora chrysoptera)*. One male (52-77-22) Barr Lake, Adams Co. 7-9 May 1977 (RA, WL). One male (52-77-33) Boulder, Boulder Co. 14 May 1977 (PJ). Nineteenth and twentieth records (16 are spring records, mostly mid- and late May).

BLUE-WINGED WARBLER *(V. pinus)*. One (52-76-40) Two Buttes Res., Baca Co. 5-7 May 1976 (PJ, JR). One male (52-76-77) Barr Lake, Adams Co. 6 Jun 1976 (RA). Sixth and seventh state records (all spring).

CAPE MAY WARBLER *(Dendroica tigrina)*. One male (52-76-42) Boulder, Boulder Co. 10-12 May 1976 (RA, PM, JR, NM, photo on file-PM). One female or immature (52-76-109) Boulder, Boulder Co. 31 Oct 1976 (RA). Second fall record for Colorado, the first being at Waterton, Jefferson Co. 20-23 Nov 1974. One male (52-77-32) Moraine Park Campground, Rocky Mountain National Park, Larimer Co. 6 May 1977 (PH). One male (52-77-28) Lower Dixon Res., Larimer Co. 7 May 1977 (DL). One male (52-77-50) Endovalley, Rocky Mountain National Park, Larimer Co. 12-13 Jun 1977 (KB, FK, SWo), with complete details provided by Bass (1977). Ninth-thirteenth state records (all but two in spring).

HERMIT WARBLER *(D. occidentalis)*. One male (52-76-68) Boulder, Boulder Co. 20 May 1976 (RV). Second state record.

YELLOW-THROATED WARBLER *(D. dominica)*. One male (52-77-24) Bonny Res., Yuma Co. 15 May 1977 (WL, MM, PM, photos on file-WL). Ninth state record.

PINE WARBLER *(D. pinus)*. One male (52-76-98) Pingree Park near Rustic, Larimer Co. 11 Jul 1976 (TB). Ninth state record. First summer record; all others are from September-December with one May record.

PRAIRIE WARBLER *(D. discolor)*. One male (52-76-71) Bonny Res., Yuma Co. 15-16 May 1976 (photos on file-PM, JS). Fourth state record (all mid-May to early June).

LOUISIANA WATERTHRUSH *(Seiurus motacilla)*. One (52-77-23) Bonny Res., Yuma Co. 14 May 1977 (WL, MM). Second state record.

CANADA WARBLER *(Wilsonia canadensis)*. One male (52-76-2) Boulder, Boulder Co. 13-16 Oct 1975 (JR). One male (52-76-66) Colorado Springs, El Paso Co. 26 May 1976 (CC). Thirteenth and fourteenth state records (nine spring, five fall).

EASTERN MEADOWLARK *(Sturnella magna)*. Six (54-76-53) Red Lion State Wildlife Area, Logan Co. 8-9 May 1976 (JR). One (52-76-76) Red Lion, Logan Co. 30 May 1976 (WL). The only acceptable Colorado records come from this single locality.

SCOTT'S ORIOLE *(Icterus parisorum)*. One male (52-77-49) Unaweep Canyon, Mesa Co. 21 May 1977 (PJ). Fifth state record (all spring).
GREAT-TAILED GRACKLE *(Quiscalus mexicanus)*. Five males and three females (54-76-88) Monte Vista, Rio Grande Co. 12 Jun 1976 (JR). The small population at this site has been present since 1973, as reported by Stepney (1975). Four records are from other localities in Colorado (Gunnison, La Plata and Pueblo Cos.).
SCARLET TANAGER *(Piranga olivacea)*. One male (55-76-115) Boulder, Boulder Co. 16 Jun 1976 (photo on file-FH). One male (55-77-53) Poudre Canyon, Larimer Co. 19 Jun 1977 (photo on file-EDB). Thirty-nine state records (all but ten are spring, mid-May to mid-June).
SUMMER TANAGER *(P. rubra)*. One male (55-76-50) Animas Valley near Durango, La Plata Co. 7 May 1976 (GC). Thirty-eighth state record (all but five in spring).
PURPLE FINCH *(Carpodacus purpureus)*. One female or immature (56-76-25) Boulder, Boulder Co. 6 Dec 1975 (JR). One female or immature (56-76-24) Ft. Collins, Larimer Co. 20 Dec 1975, banded 11 Jan 1976, retrapped and photographed 16 Feb 1976 (photos on file-RR). One female or immature (56-76-32) Boulder, Boulder Co. 29 Feb 1976 (JR). One adult male (56-77-9) Evergreen, Jefferson Co. 2 May 1976 (WWB). Two females or immatures (56-76-101) Boulder, Boulder Co. 18 Oct 1976 (VR). Two females or immatures (56-76-111) Barr Lake, Adams Co. 30 Oct 1976 (RA). One female or immature (56-77-12) Dry Creek Res., El Paso Co. 2 Jan 1977 (DAG). One female or immature (56-77-10) Bonny Res., Yuma Co. 22-29 Jan 1977 (MM, PM, JS). Twenty-five state records; the species is recorded every winter.
BAIRD'S SPARROW *(Ammodramus bairdii)*. One male (56-76-52) Red Lion State Wildlife Area, Logan Co. 8-9 May 1976 (JR).
LE CONTE'S SPARROW *(Ammospiza leconteii)*. One (56-77-29) Dry Creek Res. near Wellington, Larimer Co. 7 May 1977 (EH, JWS, photos on file-JWS). Second state record.

CONTRIBUTORS

Helen E. Allen (HA), Robert Andrews (RA), Stewart Adams (SA), Dominic A. Bartol, Jr. (DB), Kenneth H. Bass (KB), Adam Blatnick (AB), Edward Blatnick (EB), Elyse Deffke Bliss (EDB), Linda Boden (LB), Theodore P. Bodner (TB), Sophia Bogart (SB), Stephen H. Bouffard (SHB), Winston William Brockner (WWB), Robert Buttery (RB), Honeywood P. Carter (HPC), Charles L. Campbell (CC), Gloria J. Childress (GC), Jeanne A. Conry (JC), John R. Cooper (JRC), Camille Cummings (CCu), Patricia Echelmeyer (PE), Margaret Ewing (ME), Elva Fox (EF), Thomas A. Gatz (TG), Peter Gent (PG), Ivan Getting (IG), Libby Goodwin (LG), Warner P. Gorenzel (WPG), Herman J. Griese (HG), Dave A. Griffiths (DAG), J. R. Guadagno (JRG), Wendy L. Haas (WLH), Freeman F. Hall (FH), Jeanne A. Halsey (JH), Paula L. Hansley (PH), Dale Hein (DH), Edward Hollowed (EH), Harold R. Holt (HH), W. G. Hurd (WH), Mark Janos (MJ), Christina Jones (CJ), Paul R. Julian (PJ), Hugh E. Kingery (HK), Urling Kingery (UK), Frances J. Kobetic (FK), Barry Knapp (BK), Chris Knight (CK), David Laliberte (DL), William A. Lybarger (WL), Thompson Marsh (TM), Ken Mesch (KM), Gary Miller (GM), Brian A. Millsap (BM), Narca A. Moore (NM), Michael Moulton (MM), Peter Moulton (PM), Alan Nelson (AN), Karen Nickey (KN), Richard E. Pillmore (RP), Julie Pinkham (JP), Jack Reddall (JR), Warner Reeser (WR), Vincent H. Reid (VHR), Van Remsen (VR), Joseph C. Rigli (JCR), Ronald A. Ryder (RR), Virgil E. Scott (VS), Susan Seeds (SS), Thomas G. Shane (TS), Mildred O. Snyder (MOS), John W. Solberg (JWS), Diana Stransky (DS), Richard W. Stransky (RWS), Judd Sundine (JS), Michael R. Szymczak (MS), Edward L. Thompson (ET), Babette F. Tully (BT), Van A. Truan (VT), Ridi Van Zandt (RV), Thomas E. Van Zandt (TV), Donna Vinal (DV), Bruce E. Webb (BW), Craig Williams (CW), Sartor O. Williams (SW), Sandy Wohlgemuth (SWo).

CLASS B RECORDS – Records in which the submitted documentation indicates a misidentification was made or the submitted documentation is too brief.

LITTLE BLUE HERON *(Florida caerulea)*. One (5-77-57) Union Res., Weld Co. 9 Aug 1977.

TRUMPETER SWAN *(Olor buccinator)*. One (8-76-55) Boulder, Boulder Co. 10-28 Apr 1976.

RED-SHOULDERED HAWK *(Buteo lineatus)*. One (10-76-74) Crook, Logan Co. 30 May 1976.

OSPREY *(Pandion haliaetus)*. One (11-76-14) Waterton, Douglas Co. 3 Jan 1976.

COMMON GALLINULE *(Gallinula chloropus)*. One (17-76-82) Union Res., Weld Co. 30 May or 6 Jun 1976.

SHORT-BILLED DOWITCHER *(Limnodromus griseus)*. Nine (19-77-68) Cherry Creek Res., Arapahoe Co. 1 Sep 1977.

BUFF-BREASTED SANDPIPER *(Tryngites subruficollis)*. One (19-77-36) Wray, Yuma Co. 1 May 1977. Photos on file.

THAYER'S GULL *(Larus thayeri)*. One (23-76-64) C. F. & I. Lakes, Pueblo Co. 1 Nov 1975. Photos on file. One (23-76-23) Boulder, Boulder Co. 22 Dec 1975.

LAUGHING GULL *(L. atricilla)*. One (23-76-87) Two Buttes Res., Baca Co. 16 May 1976. Three (23-76-127) Lake Henry, Crowley Co. 5 Sep 1976.

RIVOLI'S HUMMINGBIRD *(Eugenes fulgens)*. One (31-76-65) Evergreen, Jefferson Co. 19 July 1975.

SPRAGUE'S PIPIT *(Anthus spragueii)*. One (46-76-38) Masonville, Larimer Co. 27 Mar 1976.

WILSON'S WARBLER *(Wilsonia pusilla)*. One (52-76-15) Boulder, Boulder Co. early Dec 1975-early Jan 1976.

VESPER SPARROW *(Pooecetes gramineus)*. Three (56-76-17) Boulder, Boulder Co. 21 Dec 1975.

PART V – SPECIMENS

The ORC does not normally deal with specimen reports. However, to make ORC reports complete regarding recent unusual bird records, notable recent, little-known or unpublished specimens will be included. DMNH-Denver Museum of Natural History.

HARLEQUIN DUCK *(Histrionicus histrionicus)*. Parkes and Nelson (1976) reported a previously unrecorded Colorado specimen (and the only definite breeding record): a downy young collected on Vallecito Creek, La Plata Co. by A. W. Anthony 15 Jul 1883 (Carnegie Museum of Natural History 21786).

BROAD-WINGED HAWK *(Buteo platypterus)*. One female (DMNH 36714) found dead on Highway 285 1.5 miles west of Grant, Park Co. 3 Sep 1977 by Harold Holt. Only three other Colorado specimens, and very few records of any kind from the mountains.

RED PHALAROPE *(Phalaropus fulicarius)*. One male (DMNH 36147) collected live at Barr Lake State Park, Adams Co. 16 Sep 1975 by Denver Zoo personnel (led by Edward Schmidt, Curator of Birds). It died in captivity several days later. Second Colorado specimen.

BOREAL OWL *(Aegolius funereus)*. One male (DMNH 36064) collected near Estes Park, Larimer Co. 1 Apr 1970 by Allegra Collister. One (DMNH 36698) found dead at Evergreen, Jefferson Co. 2 Feb 1978 by Sylvia Brockner. There are apparently only three other Colorado specimens.

Figure 1. King Rail *(Rallus elegans)*, C. F. & I. Lakes, Pueblo Co., Colorado, 12 June-3 July 1976. First State record.

Photo by Van A Truan

Blue Jay x Steller's Jay *(Cyanocitta cristata x C. stelleri)* hybrid, Boulder, Boulder Co., Colorado, 26 January 1972.

Photo by Narca Moore

Prairie Warbler (*Dendroica discolor*), Chautauqua Park, Boulder, Boulder Co., Colorado, 30-31 May 1975. Second state record. (Reddall 1976b:94)

Photo by Steve Larson

Kentucky Warbler (*Oporornis formosus*), banded at Lykin's Gulch, Boulder Co., Colorado, 6 May 1975. Fourth state record. (Reddall 1976b:94)

Photo by Vern Walker

Louisiana Heron *(Hydranassa tricolor)*, Barr Lake and Mile High Duck Club, Adams Co., Colorado, 25 July-1 August 1971. Third state record. (Reddall 1976b:86)

Photo by Harold R. Holt

Spotted Owl *(Strix occidentalis)*, Rocky Mountain Arsenal, Adams Co., Colorado, 3-5 June 1975. Twelfth state record. Rocky Mountain Arsenal, approximately 50-55 km from mountains, is 95%+ grassland with few trees. Owl was in a tree by the front window of the arsenal office building. (Reddall 1976b:93)

Photo by Randal L. Fairbanks

Caspian Tern *(Sterna caspia)*, Lake Henry, Crowley Co., Colorado, 27-28 May 1974. First state record. (Reddall 1976b:83)

Photos by Stan W. Oswald

SAW-WHET OWL *(A. acadicus)*. One juvenile (DMNH t-335) found dead in Denver Co. 25 Jun 1976 by Mrs. V. L. Johnson. One (DMNH 1978-62) found dead near Castle Rock, Douglas Co. 15 Dec 1977 by Sally Cockrum. There are about 20 Colorado specimens.
CALLIOPE HUMMINGBIRD *(Stellula calliope)*. One immature male (DMNH 36146) collected in Arapahoe Co. 16 Aug 1956 by Robert J. Niedrach. This bird is in addition to another individual collected at the same time (DMNH 36455) and previously reported by Bailey and Niedrach (1965).
ALDER FLYCATCHER *(Empidonax alnorum)*. One female (DMNH 36456) collected Wray, Yuma Co. 26 May 1906 by Will C. Ferril. One female (DMNH 36455) collected Holly, Prowers Co. 1 Jun 1908 by H. G. Smith. Apparently the only Colorado records. Both identified by Allan R. Phillips.
GOLDEN-WINGED WARBLER *(Vermivora chrysoptera)*. One male (at Indiana University) collected in 1881 in Colorado (possibly Elbert Co.) by Frank M. Drew. Reported by Kowalski (1978). Only Colorado specimen.
BLACKBURNIAN WARBLER *(Dendroica fusca)*. One male (DMNH 36144) found dead at Green Mountain, Lakewood, Jefferson Co. 3 Jun 1975 by John Kenning. First Colorado specimen.
NORTHERN ORIOLE *(Icterus galbula)*. One male "Bullock's" (DMNH 36165) found dead in Denver Co. 1 Jan 1976 by Frances Arterburn. First winter record.
SUMMER TANAGER *(Piranga rubra)*. One first-year male (DMNH 36423) Golden, Jefferson Co., first seen 23 Apr 1976 and found dead 1 May 1976 by Mrs. Jerry Cebula. Fourth Colorado specimen.

The following notable specimens, formerly in the collection of Western State College at Gunnison, Colorado, have now been deposited in the collection of the Denver Museum of Natural History, and are given with their DMNH catalog numbers. All are from Gunnison, Gunnison Co. Most have previously been mentioned by Bailey and Niedrach (1965).

SNOWY PLOVER *(Charadrius alexandrinus)*. One (36722) May 1966 by D. Radovich.
VERMILION FLYCATCHER *(Pyrocephalus rubinus)*. One female (36721) 18 Nov 1952 by A. S. Hyde.
NORTHERN PARULA *(Parula americana)*. One male (36717) 24 May 1952 by A. S. Hyde. One male (36724) 24 May 1977 by T. T. Hariss.
DICKCISSEL *(Spiza americana)*. One (36718) 18 Sep 1956 by A. S. Hyde.
GRASSHOPPER SPARROW *(Ammodramus savannarum)*. One (36723) 15 Oct 1953 by A. S. Hyde.
LE CONTE'S SPARROW *(Ammospiza leconteii)*. One (36720) 6 May 1952 by A. S. Hyde.
SHARP-TAILED SPARROW *(Ammospiza caudacuta)*. One (36719) 24 Oct 1952 by A. S. Hyde.

ACKNOWLEDGMENTS

I would like to thank the many Colorado birders who have contributed reports of unusual birds contained herein, and I encourage them to continue to do so. I would also like to thank the following persons: Betsy Webb for her assistance in putting together the specimen section and for permission to include these records; Laurence Binford for examining the documentation of the Lesser Black-backed Gull; Alan Craig and Van

Remsen, who commented on an earlier draft of this report; and Bruce Webb for his comments on a later draft. Finally, many thanks must go to Jack Reddall, Chairman from May 1972 until October 1977. His tremendous efforts led to the establishment of the ORC and the accumulation of an extensive and well-organized body of information.

LITERATURE CITED

American Ornithologists Union. 1976. Thirty-third supplement to the American Ornithologists Union check-list of North American birds. Auk 93:875-879.

Bailey, A. E. and R. J. Niedrach. 1965. Birds of Colorado. 2 vol. Denver Mus. Nat. Hist., Denver.

Bass, K. H. 1977. Cape May Warbler at Rocky Mountain National Park. C. F. O. Journal 31:14-15.

Davis, W. A. 1969. Birds in western Colorado. Colorado Field Ornithologists.

Griffiths, D. A. 1976. King Rail – first Colorado record. C. F. O. Journal 28:17.

Holt, H. R. 1975. Status and migration data of birds of the Denver area. Pages 99-124 *in* J. A. Lane and H. R. Holt. A birder's guide to eastern Colorado. L & P Press, Denver, Colorado.

Kowalski, M. P. 1978. Golden-winged Warbler – discovery of a specimen from Colorado. C. F. O. Journal 32:25.

Parkes, K. C. and C. H. Nelson. 1976. A definite Colorado breeding record for the Harlequin Duck. Auk 93:846-847.

Reddall, J. 1973a. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 15:9-15.

Reddall, J. 1973b. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 16:19-26.

Reddall, J. 1973c. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 18:9-22.

Reddall, J. 1974a. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 19:11-41.

Reddall, J. 1974b. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 21/22:28-34.

Reddall, J. 1975. Reports from the CFO Official Records Committee. Colorado Field Ornithol. 23:17-34.

Reddall, J. 1976a. CFO Official Records Committee 1975 report. C. F. O. Journal 27:5-22.

Reddall, J. 1976b. Colorado Field Ornithologists Official Records Committee report 1972 through 1975. West. Birds 7:81-97.

Stepney, P. H. R. 1975. First recorded breeding of the Great-tailed Grackle in Colorado. Condor 77:208-210.

Webb, B. E. 1976. A Groove-billed Ani in northeastern Colorado. West. Birds 7:153-154.

Webb, B. E. 1978. The occurrences of the Red-shouldered Hawk in Colorado. C. F. O. Journal 32:19-21.

Webb, B. E. and J. A. Conry. 1978. First record of a Lesser Black-backed Gull in Colorado. West. Birds 9:171-173.

Webb, B. E. and J. A. Conry. 1979. A Sharp-tailed Sandpiper in Colorado, with notes on plumage and behavior. West. Birds in press.

Accepted 22 February 1979

FIELD IDENTIFICATION OF THE HAWAIIAN CREEPER ON THE ISLAND OF HAWAII

J. MICHAEL SCOTT, Patuxent Wildlife Research Center, U. S. Fish and Wildlife Service, Post Office Box 44, Hawaii National Park, Hawaii 96718

SHEILA CONANT, University of Hawaii at Manoa, Department of General Science, 2450 Campus Road, Honolulu, Hawaii 96822

H. DOUGLAS PRATT, Museum of Zoology, Louisiana State University, Baton Rouge, Louisiana 70893

The Hawaii race of the Hawaiian Creeper *(Loxops maculatus mana)* has recently been classified as endangered (USFWS 1975). As recently as 1972, so little was known about the bird's distribution and abundance that Berger (1972:137), in summarizing existing knowledge, was unable to state whether the species was uncommon or on the verge of extinction. Underlying the lack of information on this bird's status is the inability of many observers to consistently and correctly distinguish it from the abundant Hawaii race of the Amakihi *(Loxops virens virens)*. Field identification of these two species is problematic on the islands of Oahu (Shallenberger and Pratt 1978) and Hawaii. The similarity of these two birds on the island of Hawaii has been previously mentioned by Henshaw (1902), Munro (1944) and Peterson (1961), but adequate field characters still have not been well documented. Because the creeper is classed as endangered and because identifications have often been uncertain, we herein identify and document the behavioral and morphological characters that have proved useful in identifying the Hawaii Creeper.

METHODS

We examined museum specimens of *L. v. virens* and *L. maculatus mana*. The colors of the throat, forehead, belly, nape, side, back and cheek were critically compared. The songs and calls of these species as well as those of the Akepa *(L. c. coccineus)* were recorded using a Dan Gibson parabolic microphone and cassette recorders. Audiospectrograms were made using Spectral Dynamics Model No. SD301-c, Real Time Analyzer with an analysis range of 0-10,000 Hz and a band width of 120 Hz.

We carefully observed Hawaii Creepers in the field for extended periods of time and characterized those features most useful in distinguishing them from Amakihi and other species similar in sound or appearance. During observations of birds thought to be creepers, we recorded the bases on which we made our identification. We noted whether songs, calls or movements initially caught our attention. The character that first indicated that the bird was a creeper was recorded as one of the following: call, song, foraging behavior, superciliary stripe,

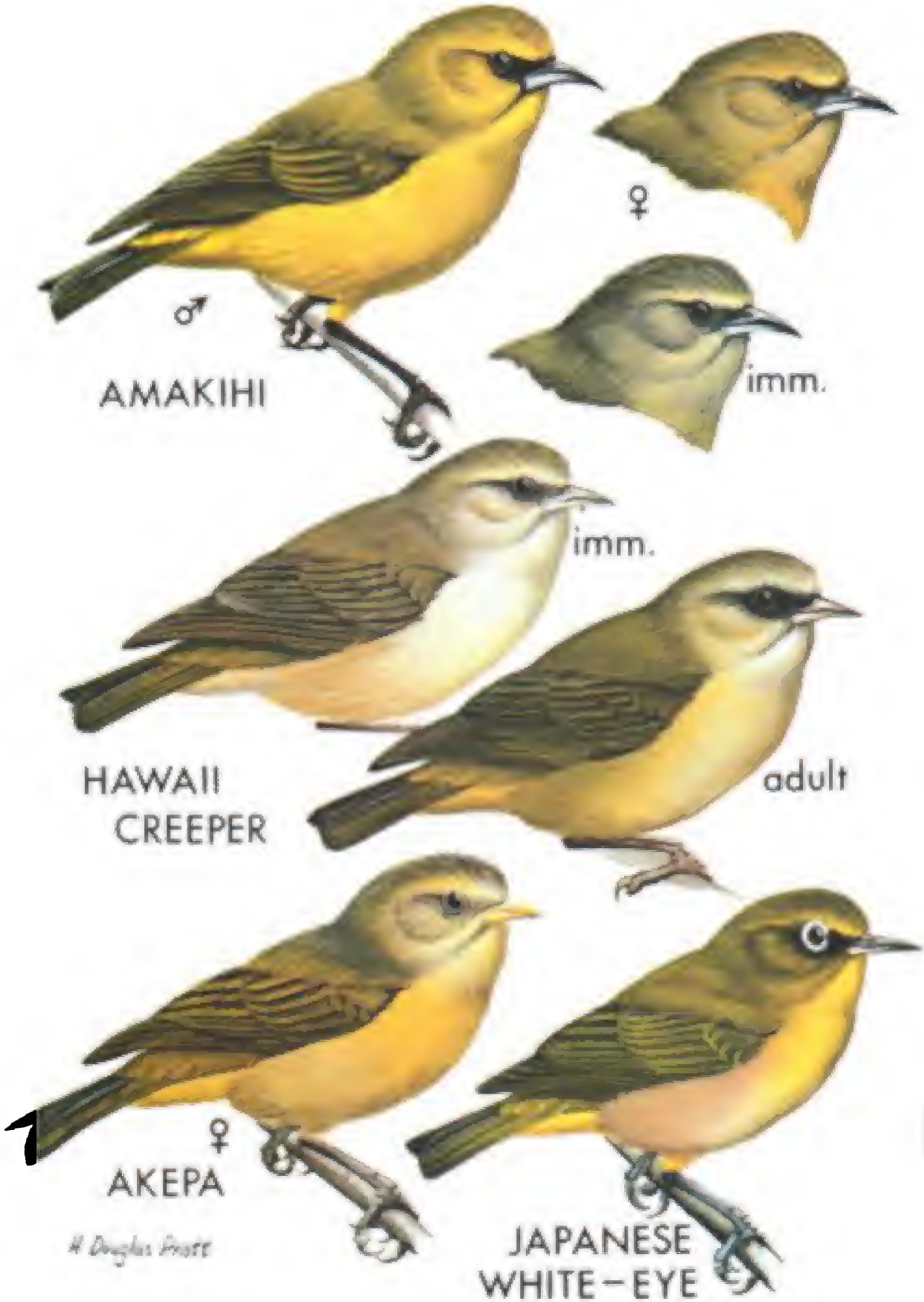


Plate 1. The Hawaii Creeper and three species that could be confused with it, the Amakihi, *L. v. virens* (adult male, adult female and immature); the Hawaii Akepa, *L. c. coccineus* (female); and the Japanese White-eye *(Zosterops japonicus)* are shown for quick comparison of morphological features that can be used to distinguish between them

bill shape, or eye patch. Finally, we recorded the character that confirmed the identification of a creeper or indicated that the bird was another species. Characters used to make this final identification included, in addition to those mentioned above, the color of lores and presence of an eye-ring. When an auditory cue initially suggested that a bird was a creeper, visual cues were sought to confirm the identification. Nomenclature follows that of Berger (1972) with changes to meet rulings by the International Commission on Zoological Nomenclature (1964 and 1974).

APPEARANCE AND BEHAVIOR

The Hawaii Creeper is a rather small bird 11-13 cm in length. Adults are not sexually dimorphic in color but immatures can be distinguished by the presence of a pale superciliary line. Both are drab gray-green birds. Other small green birds likely to be confused with creepers on the island of Hawaii include the above-mentioned Amakihi, female and immature Akepa, and the exotic Japanese White-eye *(Zosterops japonicus*; Plate 1 and Table 1). The Japanese White-eye is easily distinguished by its bright yellow throat and upper breast as well as the prominent white eye-ring. The female Akepa is drab gray-green with no dark patches in the face and a pale superciliary line. The conical, straw-yellow bill and relatively long, notched tail are diagnostic. The highly variable Amakihi is more difficult to distinguish and is dealt with in detail below.

General Coloration. Hawaii Creepers are a drab olive green above, with little of the yellowish coloration seen in many Amakihis. Below they are dull whitish washed with olive green on the flanks and breast. The throat is always white and contrasts with the greenish tones of the breast in adults. Immatures are much paler below, with less contrast between throat and breast. Further, young creepers usually show a prominent yellowish-white superciliary line. The Amakihi can be just as drab in color as the Hawaii Creeper, but never has a contrasting white throat. Unfortunately, this character is often difficult to see in the field.

Facial Features. The distribution of black in the faces of Hawaii Creepers and Amakihis gives them distinctive facial expressions that, once noticed, become very useful in forming a search image. The black lores of the Amakihi give it a masked appearance. The adult creeper possesses a broad mask of black or dark gray that extends to behind the eye. We called this an "eye patch." The effect is to enhance the apparent size of the eye and give the bird a wide-eyed or black eye appearance. Both Amakihis and immature Hawaii Creepers have superciliary lines, but that of the creeper is broader, bolder and appears yellowish-white rather than yellow as is usually the case in the Amakihi.

Leg Color. The tarsi of the Hawaii Creeper appear dark brown whereas those of the Amakihi are black. This character is evident only in good light at close range.

Table 1. Characters that can be used to distinguish Hawaii Creepers from Amakihis, Hawaii Akepas, and Japanese White-eyes.

CHARACTER	HAWAII CREEPER	AMAKIHI	AKEPA	JAPANESE WHITE-EYE
Song	Quavering, descending trill	Loud monotone trill	Loose irregular trills	No trills; varied, imitative
Call	Soft *sweet*	Nasal *cheep*	Two-syllable *cheeleep*	Sharp, high, thin notes; usually several strung together
Foraging Behavior	Slowly moves over larger branches and trunks of trees	Usually forages among foliage or smaller limbs, frequently in flowers	Forages in outer canopy, probing among axils of leaves, rarely in flowers	Variable – may forage among foliage, small limbs, twigs and flowers, or rarely in larger limbs and trunks
Posture	Parallel to foraging substrate	Variable	Very upright posture	Variable
Bill	Slightly decurved; lower mandible paler than upper	Sharply decurved, degree of curvature may vary with age and sex; appears black at a distance but has pale blue-gray area at base of lower mandible	Straight, conical; straw yellow	Straight, warbler-like bill

Bill. The Hawaii Creeper's bill is only slightly decurved and is brownish white throughout except for a dusky tinge along the culmen. It appears pale at a distance and never looks bluish at the base. The more strongly decurved bill of the Amakihi looks black at a distance, but at close range exhibits a pale blue area at the base of the lower mandible. Adult male Amakihis have significantly longer beaks than either adult females or immatures of either sex (van Riper 1978). Curvature is also most pronounced in adult males.

Foraging Behavior. The Hawaii Creeper's slow movements while gleaning insects on large branches and trunks of trees have been considered important in distinguishing the species from similar birds (Henshaw 1902, Peterson 1961). We have found this character to be unreliable, however, if relied upon to the exclusion of other features especially for brief sightings. Infrequently the Amakihi and Japanese White-eye forage creeper-like on large limbs or trunks. Their movements are usually quicker and jerkier, and these species move between foraging substrates more frequently than do creepers. When moving upward on a vertical substrate the Amakihi and white-eye flick their wings more and, unlike the creeper, usually move to the smaller branches or foliage. Any bird that consistently creeps over trunks and branches for long periods is very likely the Hawaii Creeper.

Recent comparative studies of the foraging behavior of some Hawaii island forest birds allow generalizations about the foraging substrates and positions of the Amakihi, Akepa, creeper, and white-eye (Conant in prep).

The Hawaii Akepa usually forages in the upper canopy within a meter of its outer edge. The Amakihi forages in the lower and middle canopy, and in the perimeter of the canopy, but is frequently found in the middle crown area. Both of these species are usually found on twiglets and on the foliage, while the Hawaii Creeper is found foraging on the larger branches of the crown interior at the middle and upper levels. Finally, the Japanese White-eye forages at the perimeter of the lower and middle canopy.

Although the above characterizations are useful, none of these observed "preferences" for foraging areas within the habitat provides sufficient basis to finalize a field identification.

VOCALIZATIONS

Songs. The song of the Hawaii Creeper is a quavering, descending trill, frequently very soft and easily missed in the field. Perkins (1903), an acute observer with extensive field experience in Hawaii, never heard a creeper sing. We have heard the song on numerous occasions from December through August. The song most easily confused with the creeper's is that of the Akepa. However, the Akepa's song is loose and

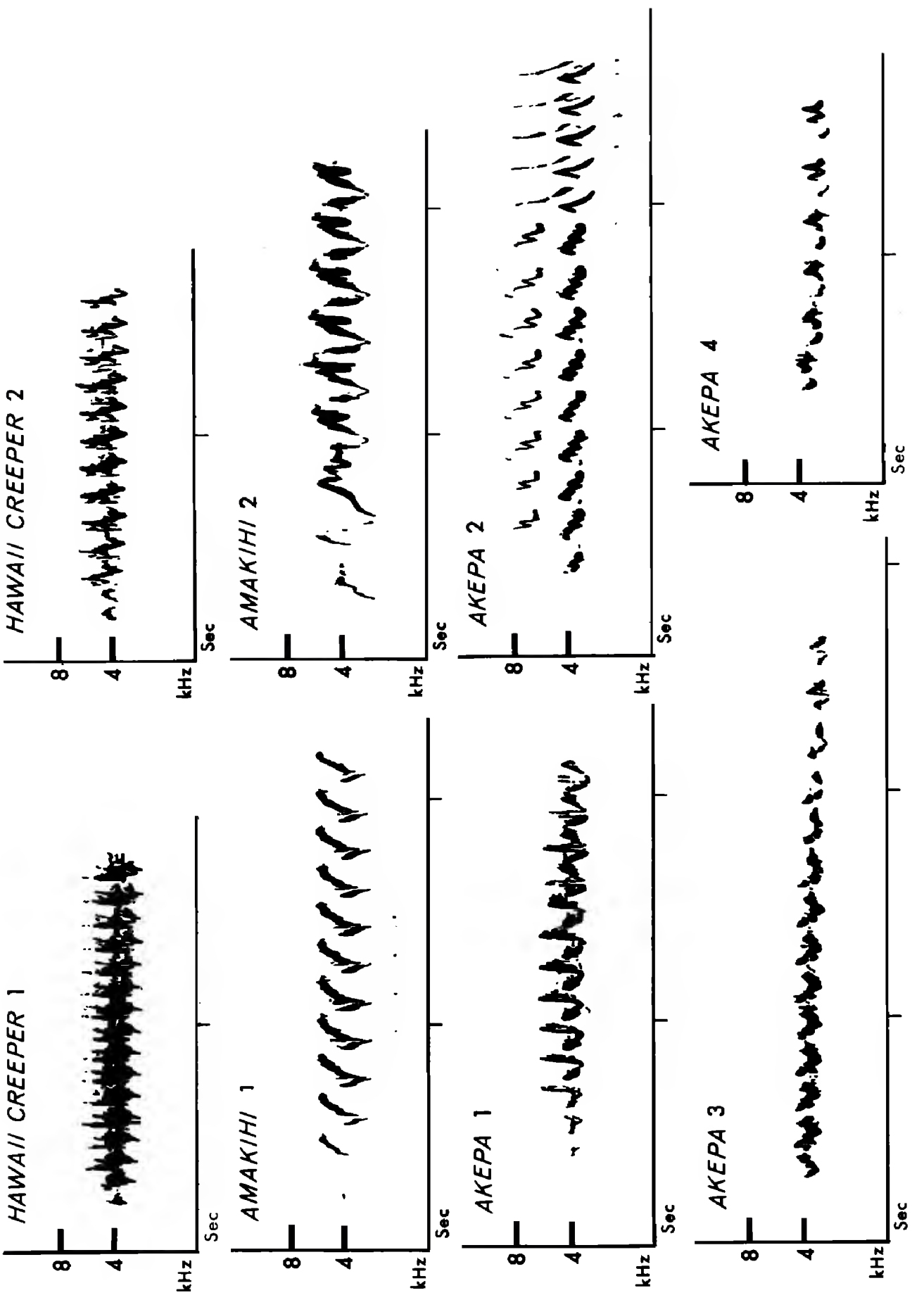


Figure 1. Songs of three similar *drepanideds* from the island of Hawaii.

lackadaisical and is not so stereotyped, often changing pattern from one song to the next. The song of the Amakihi is a slower and choppier trill, with the individual notes more distinct than in either the Akepa's or the creeper's song (Figure 1).

Calls. The usual call of the Hawaii Creeper is a quiet *sweet*, easily missed among louder calls and songs. Family groups of creepers, however, produce a loud, distinctive chatter of wheezy notes in short series: *whit-whit . . . whi-whi-whit* etc. (Figure 2), resembling calls of the Pygmy Nuthatch *(Sitta pygmaea)* of western North America. Such family-group calls are frequently heard in the spring and early summer when fledged young are still following parents. The Amakihi possesses a variety of calls, many resembling those of other species. The call most frequently given is a single raspy *zhee* or *sweek* that will remind birders from North America of the call of the Blue-gray Gnatcatcher *(Polioptila caerulea)*. Other calls include an inquisitive upslurred *queet* and various short chirps and tweets. A calling Amakihi will often give a variety of calls in a single bout of vocalization, whereas Hawaii Creepers usually repeat the same call monotonously. The Akepa's call is a high-pitched, two-note, whistled *cheedlee*, not likely to be confused with the calls of the Hawaii Creeper but similar to some Amakihi calls (Figure 3).

IDENTIFICATION PROCESS

A birder's initial identification of a bird in the field is not always correct. The percentage of times this first impression proves accurate will vary with the observer's familiarity with the species in question, how well the bird was heard or seen, and the person's degree of concentration at the time of the observation. Discussions with individuals who had initially misidentified birds as creepers revealed that the Amakihi most often caused confusion. Recognizing these problems, Scott documented those features that 1) attracted his attention to a bird; 2) suggested that it

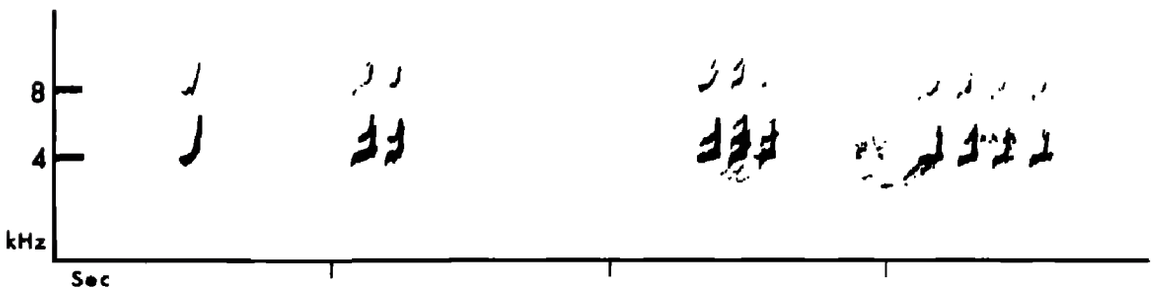


Figure 2. An approximately 3-second segment of chattering notes of a Hawaii Creeper accompanying a small, presumably family, group. The chatter continued in like manner for some minutes. Recorded 3 May 1977 on west slope of Hualalai, ca. 1600 m.

was a creeper; and 3) confirmed or denied the initial identification (Table 2). Of the 72 birds initially identified as creepers, 53 (73.6%) were verified as being Hawaii Creepers and 22.2% were identified as some other species. Of the latter, 12 (16.7%) were found to be Amakihis, 3 (4.2%) Japanese White-eyes, 1 (1.4%) an Akepa, and 3 (4.2%) unknown. For creeper identifications that subsequently proved to be correct, the character that first suggested that the bird was a creeper was foraging behavior in 54.7% of the cases and call in 30.2%. Other features such as song, superciliary line or bill shape were used far less frequently at this stage of identification (Table 2). The feature most often used to confirm the identification of a Hawaii Creeper was bill shape (64.2%), but throat color, facial features, foraging behavior, song and calls were also used.

Foraging behavior was used to identify 14 (87.5%) of the supposed Hawaii Creepers that turned out to be some other species. Bill shape was used in 9 (56.2%) of the mistaken identifications to establish the true identity of the bird. Song, facial features, throat coloration and presence of an eye-ring were used in other cases.

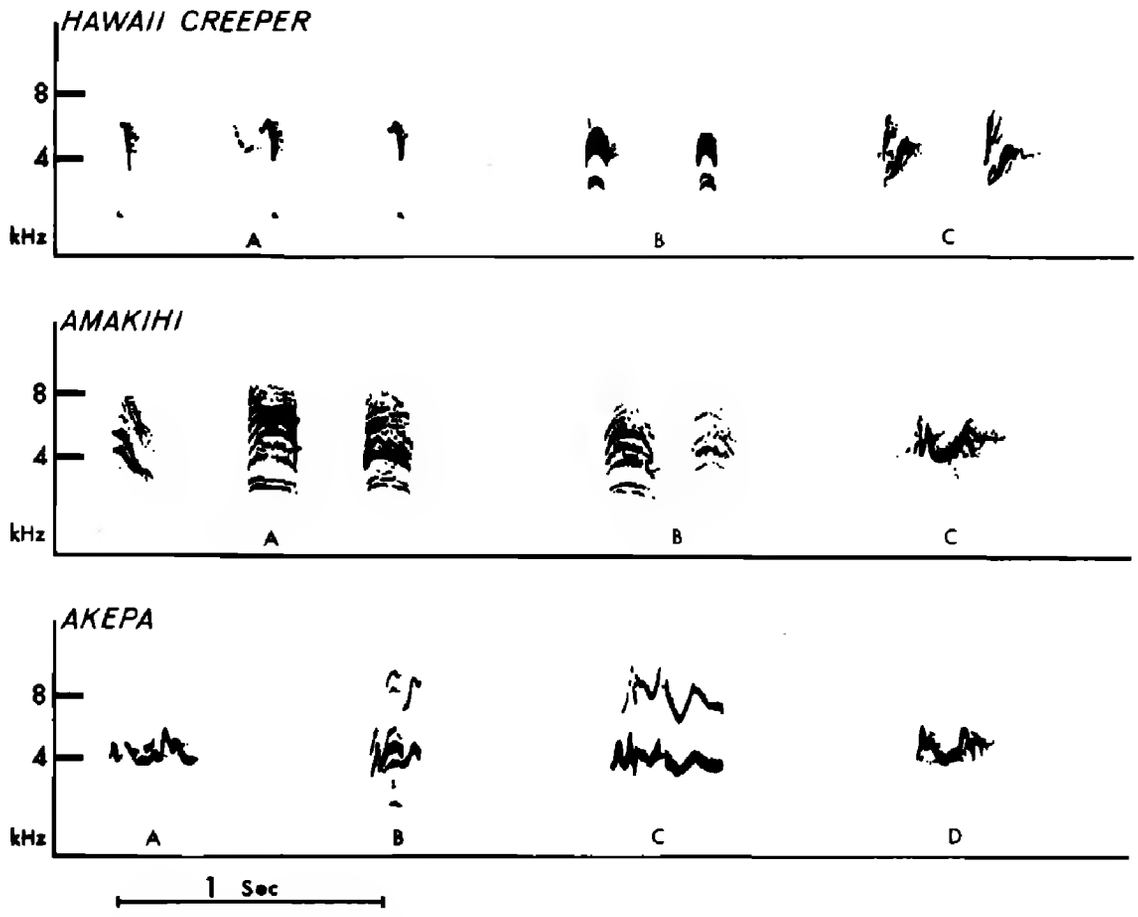


Figure 3. Call notes of three *drepanidids* from the island of Hawaii. Calls that are grouped were uttered in the time sequence shown. Single calls are arranged to facilitate comparisons, and were not uttered in the pattern shown.

Table 2. Characters used in identifying 72 birds that were initially identified as being Hawaiian Creepers. Three of these birds were never confirmed as to species.

	CREEPERS					
	First		Second		Confirming	
	N	%	N	%	N	%
Call	18	34.0	16	30.2	2	3.8
Song	7	13.2	8	15.1	4	7.6
Movement	28	52.8	0	– 0 –	0	– 0 –
Foraging behavior	0	– 0 –	29	54.7	0	– 0 –
Bill shape	0	– 0 –	0	– 0 –	34	64.2
Mask	0	– 0 –	0	– 0 –	0	– 0 –
Throat color	0	– 0 –	0	– 0 –	8	15.1
Eye patch	0	– 0 –	0	– 0 –	5	9.4
Eye ring	0	– 0 –	0	– 0 –	0	– 0 –
Total	53		53		53	

	OTHER SPECIES					
	First		Second		Confirming	
	N	%	N	%	N	%
Call	1	6.3	1	6.3	0	– 0 –
Song	1	6.3	1	6.3	1	6.3
Movement	14	87.5	14	87.5	0	– 0 –
Foraging behavior	0	– 0 –	0	– 0 –	0	– 0 –
Bill shape	0	– 0 –	0	– 0 –	9	56.3
Mask	0	– 0 –	0	– 0 –	2	12.5
Throat color	0	– 0 –	0	– 0 –	1	6.3
Eye patch	0	– 0 –	0	– 0 –	0	– 0 –
Eye ring	0	– 0 –	0	– 0 –	3	18.8
Total	16		16		16	

DISCUSSION

Clearly Peterson's (1961) statement that"it is virtually safe to call any small greenish bird with no white eye-ring an Amakihi unless proven otherwise" is not valid. Field identifications of the Hawaii Creeper should involve as many characters as possible. If the throat cannot be seen, the distribution of black in the face or shape of the bill may be helpful. Behavioral cues, especially vocalizations, become more useful with increasing familiarity with the birds. Even veteran observers in Hawaii do not expect to positively identify *every* small, green bird they see, but we believe the criteria outlined here will greatly increase the number of such birds that can be identified to species.

The reader should be cautioned that the subspecies of creeper on the other Hawaiian Islands differ widely among themselves in appearance and behavior and present special field problems of their own. We refer the interested observer to Shallenberger and Pratt (1978) for identification of the Oahu race.

ACKNOWLEDGMENTS

Discussions with the members of the Hawaii Forest Bird Survey Teams from 1976 to 1978 were very helpful in determining those features which observers found useful in identifying creepers. Tonnie L. C. Casey and Charles van Riper were particularly helpful. C. John Ralph provided slides and prints of creepers and Amakihi which H. Douglas Pratt used in making the color plate. Tonnie L. C. Casey, Cameron B. Kepler and C. J. Ralph offered comments on earlier drafts of this paper. We wish to thank James L. Gulledge for making the audiospectrograms.

LITERATURE CITED

Berger, A. J. 1972. Hawaiian birdlife, Univ. Press Hawaii, Honolulu, Hawaii.

Henshaw, H. W. 1902. Complete list of the birds of the Hawaiian possessions with notes on their habits. Thos. G. Thrum. Honolulu.

International Commission on Zoological Nomenclature 1964. International zoological nomenclature adopted by the XV International Congress of Zoology. Int. Trust Zool. Nomenclature, London.

International Commission on Zoological Nomenclature. 1974. Amendments to the International Code of Zoological Nomenclature adopted since the XVI International Congress of Zoology, Washington, 1963. Bull. Zool. Nomenclature 31:77-89.

Munro, G. C. 1944. Birds of Hawaii. Bridgeway Press, Rutland, Vermont.

Peterson, R. T. 1961. A field guide to western birds. Houghton Mifflin Co., Boston.

Perkins, R. C. L. 1903. Vertebrata (Aves), Pages 368-465 *in* D. Sharp, ed. Fauna Hawaiiensis, vol. 1, part 4. Univ. Press, Cambridge, England.

Shallenberger, R. J. and H. D. Pratt 1978. Recent observations and field identification of the Oahu Creeper *(Loxops maculata maculata)*. Elepaio 38:135-140.

U. S. Fish and Wildlife Service. 1975. Listing of endangered and threatened fauna. Federal Register 40:44149-44151.

van Riper, C., III 1978. The breeding biology of the Amakihi *(Loxops virens)* and Palila *(Psittirostra bailleui)* on Mauna Kea, Hawaii. Unpubl. Ph.D. dissertation, Univ. Hawaii, Honolulu, Hawaii.

Accepted 14 January 1979

NOTES

SOUTHERN RACE OF XANTUS' MURRELET BREEDING ON SANTA BARBARA ISLAND, CALIFORNIA

KATHY A. WINNETT and KELVIN G. MURRAY, Department of Biology, California State University, Northridge, California 91330

JOHN C. WINGFIELD, Department of Zoology, University of Washington, Seattle, Washington 98195

We report here the first breeding record of the southern race of Xantus' Murrelet *(Endomychura hypoleuca hypoleuca)* north of the San Benitos Islands, central Baja California. Two well-marked subspecies of this small black and white alcid, differing in size and facial plumage, were first described by Green and Arnold (1939) and further investigated by Jehl and Bond (1975). The northern race *(E. h. scrippsi)* breeds from San Miguel Island off the California coast to the San Benitos Islands off Baja California; this form is characterized by an entirely dark facial pattern (Classes "3" and "4", Jehl and Bond 1975:13) in which the white throat and face feathers do not extend all the way up to the eye. Murrelets of the southern race *(E. h. hypoleuca)* have whiter facial patterns (Classes "0" and "1") "in which the white of the face extends up in front of (and occasionally over) the eye, and onto the ear coverts . . ." (Jehl and Bond 1975:15). Prior to this record, this subspecies had been known to breed only on Guadalupe and the San Benitos islands.

On 30 April 1977 we found an incubating murrelet with white feathers extending over the eye (Class"0") in a 15 cm diameter by 10 cm deep rock crevice on Santa Barbara Island. The site was located amid a colony of *E. h. scrippsi* about 50 m above the high water mark on a rocky cliff slope. An egg had been deposited in the site previous to 13 April but was eaten by a Deer Mouse *(Peromyscus maniculatus)* before the second egg was deposited on 17 April. The bird incubated sporadically until it abandoned the nest on about 15 May. Subsequently the remaining egg was also eaten by mice.

The same rock crevice was occupied in 1978 by a pair of murrelets consisting of one *E. h. hypoleuca* (Class "0"), thought to be the same bird which occupied the site in 1977, and a murrelet having a crescent shaped notch of white feathers extending in front of, but not over the eye. Based on our photographs of this murrelet, J. R. Jehl, Jr., S. I. Bond and G. McCaskie feel that this bird is probably an intermediate type with respect to facial pattern. Definite subspecies identification is not possible without bill measurements (Jehl pers. comm.). Jehl and Bond (1975) describe a similar intermediate facial pattern (Class "2") as being characteristic of murrelets found on the San Benitos Islands; this condition may be the result of interbreeding in the two subspecies. The single, fertile egg produced by this pair on 28 April was abandoned on 23 May after a period of sporadic incubation. The egg's weight (37 g) and coloration were comparable to *E. h. scrippsi* eggs examined on Santa Barbara Island the same year. Photographs of each member of the pair were deposited at the Santa Barbara Museum of Natural History.

Several thousand Xantus' Murrelets are present at Santa Barbara Island during the breeding season. Only 3 of the 330 murrelets examined since 1975 have had either "white" or intermediate facial patterns, the pair described above and one non-breeding *E. h. hypoleuca* (Class "0") captured 100 m offshore from the island on 26 May 1976. It seems likely that the pair became established somewhere other than at Santa Barbara Island, where there is an overwhelming majority of typical *E. h. scrippsi*. It will be interesting to determine whether immigration of southern forms continues at Santa Barbara Island, and if so, whether integrity of the two races is maintained.

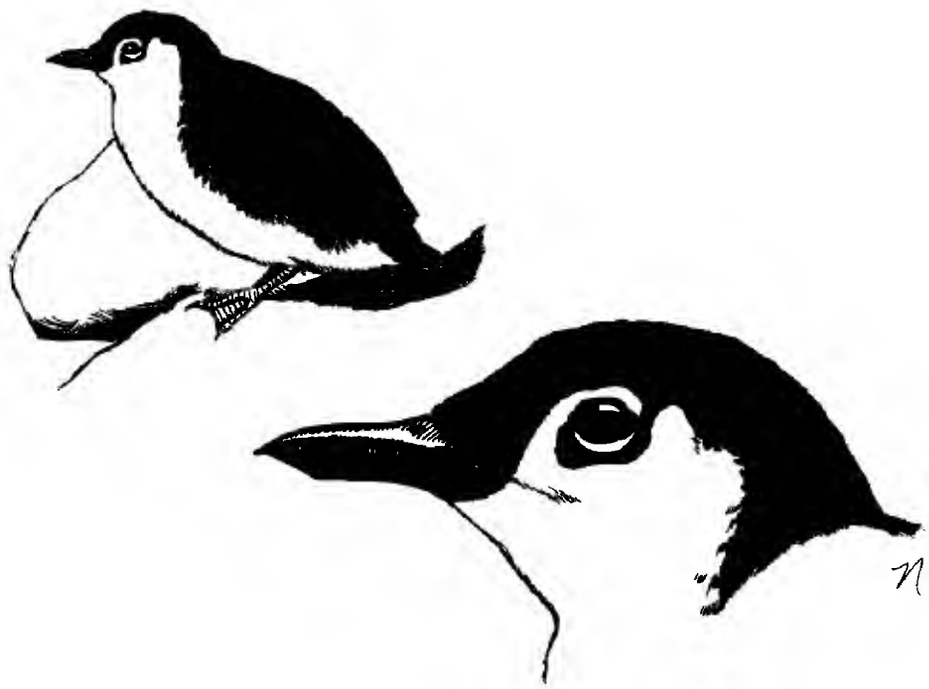
The Superintendent and staff of Channel Island National Monument kindly provided access to Santa Barbara Island. The research was supported in 1977 by Bureau of Land Management Contract no. AA-550-CT6-26 to the University of California, Santa Cruz and Irvine: K. Norris, G. L. Hunt, Jr. and B. LeBoeuf, Principal Investigators. George L. Hunt, Jr., Robert Pitman and Jim Dole provided useful comments on various drafts of the manuscript, and special thanks are also due to Joseph R. Jehl, Jr., Suzanne Bond and Guy McCaskie for helping to identify the intermediate type murrelet described in this paper.

LITERATURE CITED

Green, J. E. and L. W. Arnold. 1939. An unrecognized race of murrelet on the Pacific coast of North America. Condor 41:25-29.

Jehl, J. R., Jr. and S. I. Bond. 1975. Morphological variation and species limits in murrelets of the genus *Endomychura*. San Diego Soc. Nat. Hist., Trans. 18(2):9-24.

Accepted 12 May 1979



E. h. hypoleuca

Sketch by Narca Moore

BREEDING OF ALLEN'S HUMMINGBIRD *(SELASPHORUS SASIN SEDENTARIUS)* ON THE SOUTHERN CALIFORNIA MAINLAND

SHIRLEY WELLS*, San Pedro, California

LUIS F. BAPTISTA, Moore Laboratory of Zoology, Occidental College, Los Angeles, California 90041

The Palos Verdes Peninsula, 36.7 km east of Santa Catalina Island, in Los Angeles Co., California, is in many ways a land-locked Channel Island. The flora on the peninsula includes many Channel Island endemics. Some avian species absent on the Channel Islands are also absent on Palos Verdes (Bradley, Western Birds, in press). Bradley (loc. cit.) also noted that the breeding Orange-crowned Warbler *(Vermivora celata)* on the peninsula is referable to the Channel Island subspecies *sordida*. We document herein the subspecific and breeding status of the Allen's Hummingbird *(Selasphorus sasin)* on the peninsula as an additional contribution to the knowledge of the avifauna of this most interesting region.

The nominate migratory subspecies of the Allen's Hummingbird, *S. s. sasin*, breeds on the humid Pacific coast of California from the Oregon line south to Santa Barbara and Ventura counties (Grinnell and Miller, Pacific Coast Avifauna 27, 1944). The sedentary subspecies *sedentarius* has been known to breed only on some of the Channel Islands off the coast of southern California (Grinnell and Miller op. cit.). There are no previous breeding records for the Allen's Hummingbird south of Ventura County. On 2 June 1966 Wells noticed two fledgling Allen's Hummingbirds being fed by adults near San Pedro on the Palos Verdes Peninsula, Los Angeles, California (map in Wells et al., Auk 95:537-549, 1978). On 3 June 1966, G. Shumway Suffel saw a female feeding a juvenile at Pt. Fermin Park, on the peninsula. On 10 January 1967 Wells and Suffel found the first nests and young on the Palos Verdes Peninsula. That year *S. sasin* was found to be a common breeding bird on the peninsula.

Wells began a banding study of *S. sasin* in San Pedro on the Palos Verdes Peninsula in 1971. Marked birds held territories around feeders at her home throughout the year, revealing the sedentary nature of the population. Moreover, birds were found attending eggs and/or young all months of the year except for September and October. One bird was observed building on 29 October 1972 and young were subsequently observed in the nest in December.

Morphometrics of 13 males netted by Wells on the Palos Verdes Peninsula between 1 January 1971 and 7 August 1975 were compared with Channel Island *sedentarius* from the Museum of Vertebrate Zoology, Berkeley, California. The resident population at Palos Verdes is clearly referable to the subspecies *sedentarius* (Table 1) in size and sedentary behavior. The founders probably colonized the mainland from nearby Santa Catalina Island. A voucher specimen (male, 85326) of *sedentarius* has been deposited in the Los Angeles County Museum, Los Angeles, California.

Stiles (Condor 74:25-32, 1972) reported taking a young male *sedentarius* along with ten immature *S. rufus* from a feeding assemblage in the central part of the Santa Monica Mountains, some 66.6 km from the Palos Verdes Peninsula, in early August. Whereas this individual may be an odd vagrant, it may also indicate some postbreeding dispersal. Evidence of such dispersal should be looked for by other investigators.

*Deceased 21 April 1977.

Table 1. Morphometrics of Allen's Hummingbird subspecies. *Selasphorus s. sasin* and *S. s. sedentarius*. Values in parenthesis are means ± one standard deviation

	N	Culmen (mm)	Wing (mm)	Weight (g)
Selasphorus s. sasin [1]	20	14.1-16.3 (15.5±0.13)	36.8-38.8 (37.9±0.13)	2.8-3.9 (3.3±0.11)[4]
Selasphorus s. sedentarius[2]	10	17.9-20.3 (18.38±1.01)	38.0-41.0 (39.5±0.82)	3.2-3.9 (3.49±0.25)
Selasphorus s. sedentarius[3]	13	17.0-18.8 (17.62±0.58)**	38.0-39.5 (38.73±0.49)**	3.2-3.81 (3.52±0.24)*

*One-tailed t-test, $p<0.005$ when compared with nominate subspecies.

**One-tailed t-test, $p<0.0005$ when compared with nominate subspecies.

(One-tailed t-tests were used to demonstrate that Palos Verdes Peninsula birds were larger than the nominate.)

[1]Data from Banks and Johnson (1961, Condor 63:3-28).

[2]Specimens from the Museum of Vertebrate Zoology, Berkeley, California.

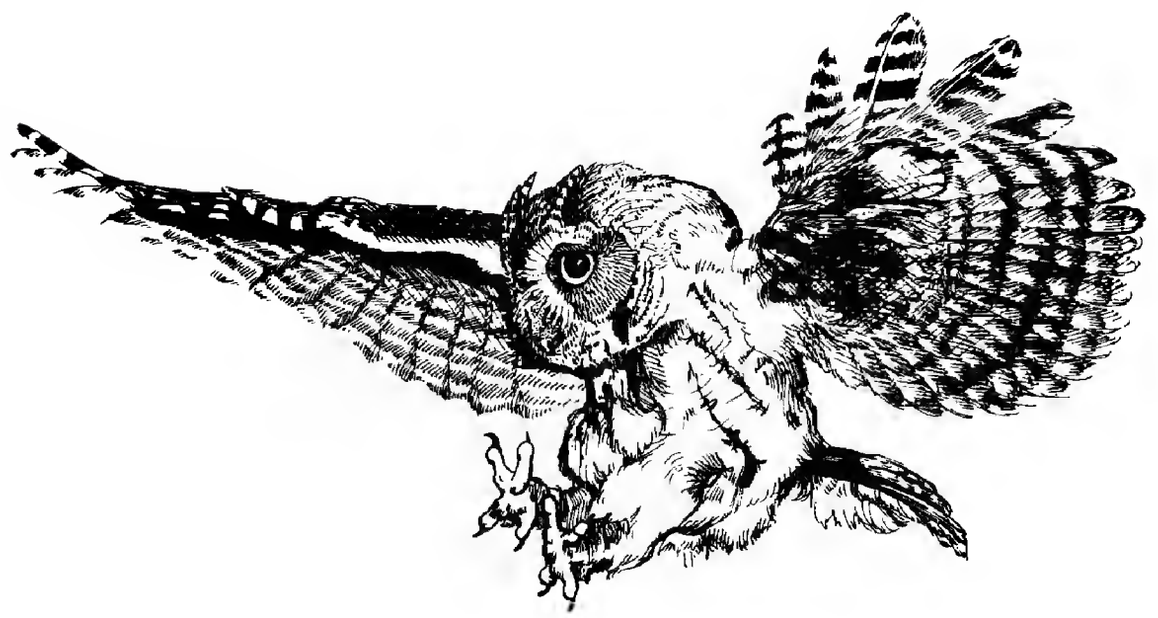
[3]Birds mist-netted, banded and released on Palos Verdes Peninsula, Los Angeles Co., California.

[4]Eleven specimens.

NOTES

We thank Ned K. Johnson for loan of specimens under his care at the Museum of Vertebrate Zoology, University of California, Berkeley, and Charles T. Collins and G. Shumway Suffel who read an earlier draft of this paper and gave helpful comments. G. Shumway Suffel also shared with us his unpublished field notes.

Accepted 28 May 1979



Screech Owl

Sketch by Narca Moore

A SHARP-TAILED SANDPIPER IN COLORADO, WITH NOTES ON PLUMAGE AND BEHAVIOR

BRUCE E. WEBB, Department of Environmental, Population and Organismic Biology, University of Colorado, Boulder, Colorado 80309

JEANNE A. CONRY, Department of Biology, University of Colorado, Denver, Colorado 80202

On 26 October 1975 we discovered an immature Sharp-tailed Sandpiper *(Calidris acuminata)* at Hiram Prince Lake II, a small pond 1 mile north of Lafayette, Boulder County, Colorado. It was observed foraging in a loose association with four Pectoral Sandpipers *(C. melanotos)*. Nearby were eight Killdeer *(Charadrius vociferus)* and four Long-billed Dowitchers *(Limnodromus scolopaceus)*. On 31 October we trapped and banded the Sharp-tailed and took a series of photographs, measurements and feather samples. Slide duplicates are on file at the Denver Museum of Natural History. Later that day we released it at the same pond, where it remained until 6 November 1975. During this 12-day period many other observers saw the bird. This is the only recorded occurrence of this species in Colorado.

The plumage description detailed below is taken from notes made on 31 October while the bird was in hand. Table 1 summarizes useful field characteristics of Sharp-tailed and Pectoral sandpipers.

UPPERPARTS: Crown feathers dark with rusty feather edging, giving the appearance of a rusty cap with narrow dark streaking. Well-defined white superciliary stripe finely streaked with dusky. Thin white eyering. Auriculars buffy, faintly streaked with brown, darkest below and posterior to eye, giving the appearance of a dark patch. Grey-buff in lores extending to upper mandible base. Nape cinnamon streaked with brown. Feather centers of scapulars and lower back blackish-brown, scapulars edged with buff, rust or white (creating two pale lines on each side of the upper back). Upper tail coverts blackish-brown with thin pale-cinnamon edging (Figure 1).

UNDERPARTS: Chin and throat unstreaked white, blending into a warm ochraceous-buff breast "bib". Ventral streaking confined to a faint "necklace" across the upper chest region and extending down the sides of the breast only, leaving the central lower breast region unstreaked (Figure 2, left). Belly dull white, upper flanks with heavy dusky shaft-streaking. In the field, the flank streaking was usually hidden by the wing. Under tail coverts with narrow dusky shaft-streaks.

TAIL: All rectrices acuminate and dark with central pair longest, others progressively shorter to the outermost (Figure 2, right). Central rectrices edged with cinnamon-rust, remaining rectrices edged with buff to white (outermost).

WING: Vanes of all remiges uniformly dusky. Shaft of outermost primary mottled with dusky basally, becoming pale distally. Secondaries narrowly edged with white. Greater secondary coverts moderately tipped with white, providing a thin wingstripe (Figure 3). Tertials elongate with rusty edges. In the field, tertials drooped over the folded remiges. Underwing coverts and axillars extensively white-tipped.

SOFT PARTS: Irises dark brown. Bill dark with indistinct pale base, slightly curved throughout. Legs drab greenish-yellow.

Table 1. Comparative field characteristics of immature Sharp-tailed and Pectoral sandpipers. These characteristics are based primarily upon prolonged observation of the Boulder County Sharp-tailed and accompanying Pectoral sandpipers, and to a lesser extent upon subsequent observations of Pectoral Sandpipers and upon examination of specimens of both species. Italics indicate most reliable field marks.

CHARACTERISTIC	SHARP-TAILED SANDPIPER *Calidris acuminata*	PECTORAL SANDPIPER *Calidris melanotos*
Body: size	More robust than Pectorals, giving a "hunched-back" appearance.	Trim, less stocky, giving appearance of a longer neck.
posture	While walking, top of head often held lower than back.	Head held more upright.
Facial appearance:	Sharp contrast between rusty crown above white supercilium and dusky auricular patch below. Noticeable from considerable distances.	Crown usually brown (occasionally with some rusty edging). Pale supercilium / crown area not sharply defined.
Underparts: throat and chest	Narrow streaking restricted to lower throat ("necklace"), sides of neck and sides only of "bib." *Mid and lower "bib" unstreaked, warm cinnamon-buff. Lower border not sharply defined* at a distance. Belly dull white.	*Entire chest* (from lower throat to upper breast, i.e. "bib" area) *usually strongly marked with dark shaft streaks. Lower edge of "bib" usually dark and well-defined.* Belly dull white.
Undertail coverts:	Dull white with distinct narrow dusky shaft streaking. This feature usually not noticeable except when seen from behind when bird is in feeding tilt.	Dull white. Presence of streaking variable between individuals, most lack streaking, some streaked as in Sharp-tailed.
Tail:	Dark, central rectrix pointed, *acuminate tips of outer rectrices* sometimes visible when the bird is preening its tail. Distal outline of tail not noticeably wedge-shaped in flight.	Dark, central rectrix pointed, outer rectrices not acuminate. Distal outline of tail not noticeably biconcave in flight.
Wing: length	In flight, when seen together, wingspread noticeably greater than Pectoral.	———
tertials	Broadly edged with cinnamon-buff.	Usually edged with gray-buff, but occasionally like Sharp-tailed.

Table 1 (Cont.)

CHARACTERISTIC	SHARP-TAILED SANDPIPER *Calidris acuminata*	PECTORAL SANDPIPER *Calidris melanotos*
Bill: length	Slightly shorter than head length, as estimated from base of bill to nape, through the eye.	Slightly longer than (or equal to) head length.
shape	Slight decurvature throughout, finer tipped than Pectorals.	Slight decurvature throughout.
color	All dark, with faint pale area at base of mandible only.	Variable, some as in Sharp-tailed, most with more extensive basal pale area in mandible.
Legs: length	Not noticeably longer than Pectoral, although stocky body gives a shorter appearance.	———
color	*Greenish-yellow*, more drab than Pectoral.	*Pale yellow.*
Call:	Mellow, *paired notes* given in flight ("tchew-wt, tchew-wt").	Dry, usually *single notes* given in flight ("Kreeh," or sometimes "Kreek-eh").

BEHAVIORAL COMPARISON

Several behavioral differences that separated the Colorado Sharp-tailed from the accompanying Pectorals are listed below. These observations are pointed out in the hopes that other observers will test the reliability of the differences in subsequent sightings of Sharp-tailed and Pectoral sandpipers.

POSTURE: When walking, the Sharp-tailed held its head at or below the level of its back, maintaining a forward-tilted appearance. Lowering its head seemed to be counterbalanced by depressing its tail to such an extent that a noticeable gap (approximately 1.0-1.5 cm) existed between the tail tip below and the wing tips above. This combination of body tilt and relatively large gap repeatedly enabled us to distinguish this bird from the Pectorals by silhouette. Pectorals maintained a more erect posture, usually holding the tail in line with the wingtips.

VOICE: When flushed, the Sharp-tailed gave a quick mellow couplet, "tchew-wt, tchew-wt" vaguely reminiscent of muted Semipalmated Plover *(Charadrius semipalmatus)* call notes.

AGGRESSION: On two occasions a Pectoral closely approached the foraging Sharp-tailed and was chased away by the latter. In each incident, the Sharp-tailed lowered its head and made a quick dash with its lowered bill aimed at the approaching Pectoral. There was no physical contact, and after each interaction the Sharp-tailed immediately resumed foraging without further pursuit.

Figure 1. Immature Sharp-tailed Sandpiper *(Calidris acuminata)*, Hiram Prince Lake II, 1 mile north of Lafayette, Boulder Co., Colorado, 26 October-6 November 1975. Note color of scapulars, face, crown and breast.

Figure 2. Immature Sharp-tailed Sandpiper *(Calidris acuminata)*, Hiram Prince Lake II, 1 mile north of Lafayette, Boulder Co., Colorado, 26 October-6 November 1975. Left photo shows well-defined white superciliary and characteristic breast markings. Right photo shows acuminate tips of outer rectrices, streaked undertail coverts and wedge-shaped outline of tail.

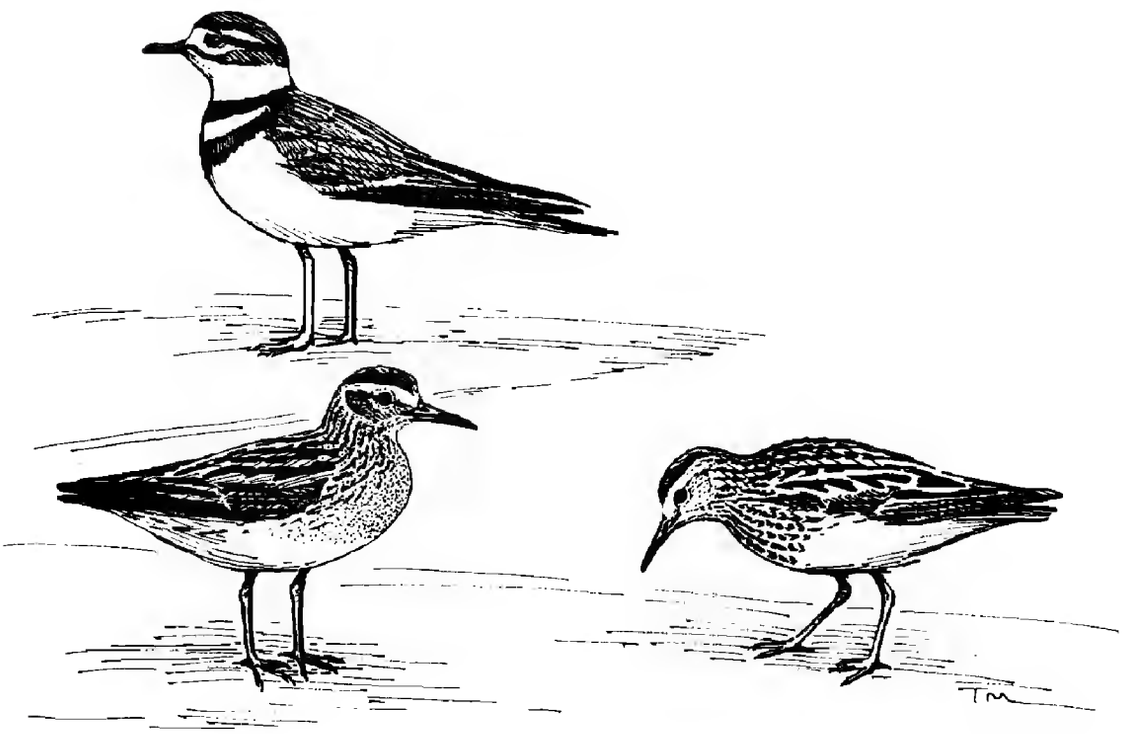
Figure 3. Immature Sharp-tailed Sandpiper *(Calidris acuminata)*, Hiram Prince Lake II, 1 mile north of Lafayette, Boulder Co., Colorado, 26 October-6 November 1975. Note wingbar and primary shaft color and extent of white along rump.

Photos by Bruce E. Webb

FLOCK ASSOCIATES: Once when the four shorebird species at Hiram Prince Lake II were flushed simultaneously, the Sharp-tailed immediately joined and circled overhead in close association with the Pectorals. The dowitchers departed and the Killdeer settled on the opposite shoreline. On another occasion we relocated the Sharp-tailed, still associated with four Pectorals, on another small pond 2.5 miles northeast of Hiram Prince Lake II.

FEEDING ZONE: The Sharp-tailed remained along the water's edge or the immediately adjacent mudflat, often wandering considerable distances from the flock of Pectorals. The Pectorals remained relatively close together, occasionally feeding at the water's edge. More often they foraged and rested in the zone of short vegetation farther from the water than the Sharp-tailed.

Accepted 2 February 1979



Sketch by Tim Manolis

A DOTTEREL ON SOUTHEAST FARALLON ISLAND, CALIFORNIA

PHILIP HENDERSON, Point Reyes Bird Observatory, 4990 Shoreline Highway, Stinson Beach, California 94970

Among the birds that came to Southeast Farallon Island in a spectacular migrational wave on 12 September 1974 was a Dotterel *(Eudromias morinellus)*. The number of shorebird species on the island had increased from 5 the previous day to 13, and the number of other migrant species from 14 to 59. The island, located 43 km west of San Francisco, California, is visited regularly in the spring and fall by migrant birds.

The Dotterel remained until 20 September. It was observed by eight persons and was photographed (Figure 1). It spent its time on the dry flat parts of the island and was often seen in the company of migrant Killdeer *(Charadrius vociferus)*. It was less skittish than the Killdeer and could be approached quite closely. Several times observers came within 5 to 10 m of it. When approached the Dotterel exhibited the "run-pause-run" behavior typical of other plovers. In flight it was very swift and emitted a repeated call note similar to the Black-bellied *(Pluvialis squatarola)* or Golden Plover *(Pluvialis dominica)*. The quality of the call was like the other plovers' but the note was simpler, lacking inflection. The plumage was apparently that of a juvenile nearing the end of its postjuvenal molt; the back feathers were black with white edges except for a few unmolted feathers that were black with rufous edges (see Dement'ev et al. 1968).

The Dotterel is a local breeder in the mountains of northern Europe and Asia. It winters in northwestern Africa, southern Tunisia, and the basin of the Mediterranean–particularly in the eastern Mediterranean and eastward to Iraq and the Persian Gulf (Nethersole-Thompson 1973). Its status in North America has yet to be fully defined. Seventeen records (20 individuals) exist in northwestern Alaska, for late May through the third week of June (Gabrielson and Lincoln 1959, and several references therein; Gibson and Byrd 1972, 1974, 1975, 1976); and three records (3 individuals) for July (Gibson and Byrd 1972, 1976; Stone 1900, in Gabrielson and Lincoln 1959). Included in the June records were two females in advanced breeding condition and sightings of pairs. The only fall record for Alaska is for a single bird seen in the Aleutians, 17 September 1977 (Gibson 1978). The Aleutians are several hundred kilometers south of the spring records. Brina Kessel (pers. comm.) considers the Dotterel to be an annual but rare summer visitant and apparent breeder in the mountainous regions of northwestern Alaska.

Besides the Farallon bird there are only two other records of vagrant Dotterels for the eastern Pacific Ocean region, a female (age unspecified) collected at Westport on the coast of Washington, 3 September 1934 (Brown 1935), and an immature female collected on Kure Atoll, in the Hawaiian Leeward Islands, on 9 September 1964 (Clapp and Woodward 1968). Of these records, all three birds were in the company of other plovers: Killdeer on the North American continent and Golden Plovers in Hawaii. It is notable that all three records occurred in the first two weeks of September and within the latitude of the Dotterel's correct winter range. The Aleutian bird may also represent a vagrant record.

ACKNOWLEDGMENTS

Special thanks are due the many persons and organizations, who by their generous donations in support of PRBO's Farallon Research Station, have made possible exciting observations such as the one reported here. I also wish to express my appreciation to Brina Kessel, University of Alaska, for information on the Alaskan status of the Dotterel and to Pieter Myers for permission to include his photograph of

Figure 1. Dotterel *(Eudromias morinellus)* present on Southeast Farallon Island, California, 12-20 September 1974.

Photo by Pieter Myers

the bird. Guy McCaskie contributed comments on an early draft, and David Ainley was of considerable help throughout preparation of this report. This is Contribution 112 of Point Reyes Bird Observatory.

LITERATURE CITED

Brown, D. E. 1935. Dotterel in western Washington. Condor 37:82.

Clapp, R. B. and P. W. Woodward. 1968. New records of birds from the Hawaiian Leeward Islands, Proc. U. S. Natl. Mus. 124(3640):1-17.

Dement'ev, G. P., R. N. Meklenburtsev, A. M. Sudilovskaya and E. P. Sangenburg. 1968. Birds of the Soviet Union, vol. 3. (Transl. from Russian) Israel Program for Scientific Translations, Jerusalem.

Gabrielson, I. N. and F. C. Lincoln. 1959. The birds of Alaska. Stackpole Co., Harrisburg, PA, and Wildl. Manage. Inst., Washington, D.C.

Gibson, D. D. 1978. The autumnal migration. Alaska region. Am. Birds 32:243-245.

Gibson, D. D. and G. V. Byrd. 1972. The nesting season. Alaska region. Am. Birds 26:890-893.

Gibson, D. D. and G. V. Byrd. 1974. The nesting season. Alaska region. Am. Birds 28:935-938.

Gibson, D. D. and G. V. Byrd. 1975. The nesting season. Alaska region. Am. Birds 29:1018-1020.

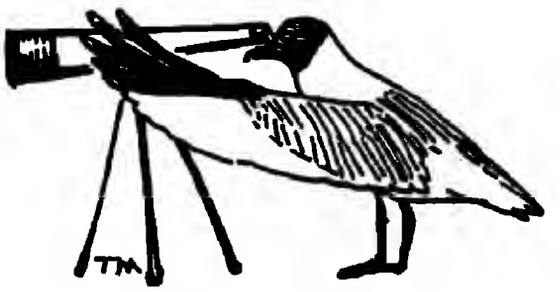
Gibson, D. D. and G. V. Byrd. 1976. The nesting season. Alaska region. Am. Birds 30:990-991.

Nethersole-Thompson, D. 1973. The Dotterel. Collins, London.

Pitelka, F. A. 1974. An avifaunal review for the Barrow region and north slope of arctic Alaska. Arctic Alp. Res. 6(2):178.

Accepted 2 September 1978

IDENTIFICATION NOTES



With this issue, we initiate a new and regular feature in *Western Birds*. Hopefully it will stimulate increased contribution of notes on field marks, photographs of poorly known or aberrant plumages, and other information worth sharing. Short notes on little-known field marks are particularly desirable, but should be backed by field experiences documenting the relative usefulness of these marks, and, if possible, examination of specimen collections. Notice and occasional summaries of articles appearing in other journals will also be included. We also wish to encourage interested and knowledgeable individuals to write full length identification papers on some of the knottier problem groups (see below). The format of this section may change considerably from issue to issue. To a large extent, contributions will reflect *your* interests.

PRIORITY LIST. Authors are encouraged to submit papers and notes dealing with any species. Greatest need, however, is for identification papers dealing with certain groups. The Field Identification Paper Committee has drafted the following list of these groups:

Loons (especially at a distance)
North Pacific procellarids (a series of papers)
Frigatebirds
Boobies
Holarctic swans
Holarctic teal (females and eclipse males)
Eagles, buteos, accipiters and large falcons (a series)
Golden plovers (all species and races)
Holarctic godwits
Calidris sandpipers
Jaegers and skuas
Gulls of the northwestern Pacific (a series)
Dark swifts (Vaux's, Black and Chimney)
Vocalizations of owls
Hummingbirds
Myiarchus flycatchers
Empidonax flycatchers
Contopus flycatchers
Pipits (primarily Asiatic wanderers)
Wingbarless vireos
North American tanagers
Grassland sparrows
Spizella sparrows
Longspurs

A list of suggestions to contributors has also been prepared by the committee, and copies are available on request. Correspondence concerning notes, papers and other contributions on field identification should addressed to: Tim Manolis, EPO Biology, University of Colorado, Boulder, CO 80309. Photographs of unusual plumages (e.g., immatures, poorly known age classes and polymorphisms) or rarely photographed species should be sent to the Photography Editor: Stephen Laymon, 3290 Ackley Road, Lakeport, CA 95453.

YELLOW-BILLED LOON IDENTIFICATION

A paper describing the first Yellow-billed Loon *(Gavia adamsii)* recorded in Switzerland has recently been published (M. Schwarz, Der Ornithologische Beobachter 75:213-226, 1978; in German with English summary). This paper presents an interesting discussion of field marks separating this species from the Common Loon *(G. immer)*, and a number of photographs that are particularly useful in highlighting the back pattern and neck proportions, in various postures, of *G. adamsii*. Recent articles on the identification of large loons have appeared in *Western Birds* (Binford and Remsen, 5:111-126, 1974) and *British Birds* (Burn and Mather, 67:257-296, 1974).

Sketch by Tim Manolis

FEMALE "BLUE-WINGED" TEAL

Field marks separating (admittedly at very close range!) female Blue-winged *(Anas discors)* and Cinnamon *(A. cyanoptera)* teals were recently discussed by D. I. M. Wallace (British Birds 70:290-294, 1977). Briefly summarizing that article, the face of the female Blue-winged Teal is more strongly patterned (clearer white at base of bill, bolder eye stripe) than the face of the female Cinnamon (see sketch). The browns of the head and underparts of the Cinnamon female are warmer and redder in tone, and the bill tends to appear more spatulate, like that of Northern Shoveler *(A. clypeata)*. Something not brought out in the paper, but which should be noted here, is that hybridization between these teal species, and between each and the Northern Shoveler, has been documented and could complicate this picture.

Field Identification Paper Committee: Tim Manolis, Chairman, Laurence C. Binford, Guy McCaskie, Richard Stallcup, Bruce Webb

WESTERN FIELD ORNITHOLOGISTS
MEMBERSHIP LIST - 1978

ALABAMA

REGULAR

Howard M. Einspahr

ALASKA

LIFE

Pete Isleib

REGULAR

Daniel D. Gibson
Robert Gill
Richard J. Gordon
Jan Harrington
Larry Mangan
Gerald A. Sanger
Gordon Tans
John Trapp

ARIZONA

SUPPORTING

Robert Smith

CONTRIBUTING

George Beringer
Mrs. Leslie Jones
Philip Walters

REGULAR

Mrs. H. C. Barker
Jonathan M. Bealer
John Bean
Timothy Brush
Virginia F. Cechmanek
Ted Cordery
Doug Danforth
William A. Davis
Mrs. David M. Demaree
Howard A. Fogg
Grace G. Gregg
William Harrison
Douglas B. Hay
Betty Jones
Kenn Kaufman
Donald W. Lamm
Mrs. Fred Longstreth
Robert L. McKernan
Dr. Carl S. Marvel
Cary W. Meister
Mr. Gale Monson
Marian Norris
Mrs. Ruth Ogden
Susan Allen Parker
William G. Roe
Gary Rosenberg
Starr Rounds
Stowell Rounds
Dr. Stephen M. Russell
Joan Simonds
Steven M. Speich
Shirley S. Spitler
Mrs. Walter R. Spofford
Scott Terrill
Dr. Carl S. Tomoff
Bret Whitney
Dr. and Mrs. Robert A. Witzeman
Dr. James M. Woolfenden

ARKANSAS

REGULAR

Norman Lavers
Charles Mills

CALIFORNIA

LIFE

Harold E. Basey
Dr. Laurence C. Binford
Virginia F. Bruno
Mrs. Brooke Clyde
Alan M. Craig
Mrs. Oliver C. Field
Alice E. Fries
Randy Hill
Douglas Kerr
John S. Luther
Eugene and Akiko Makishima
Alan B. Meyerfeld
Dr. Richard H. Neuman
Dr. and Mrs. David Smith
James H. Snowden
Jane C. Warriner

SUPPORTING

Warren S. Bray
Mrs. Albert Ghiorso
Mr. and Mrs. E. E. Henning, Jr.
Guy McCaskie
Robert W. L. Potts

CONTRIBUTING

Albert E. Ackroyd
Charles A. Anderson
Frank Baldridge
Bernice Barnes

Florence G. Bennett
Austin Brewin
Dr. Clyde Bergman
Richard P. Bertoli
Leo R. Best
Neal Clark
Nancy Crawford
Dale J. Delaney
Jules Evens
Kent Fickett
Ann Follis
Mr. & Mrs. E. G. Fremont
Milton Gregory
George O. Hale
W. Edward Harper
Ms. Linda C. Harris
W. Heckmann
Dorothy Kilfoil
Elizabeth G. Kimball
Gilbert W. King
Dr. J. M. Langham
Ronald R. LeValley
Paul and Pam Lewis
John Lindsay
Clifford R. Lyons
Ann Manolis
Dr. Robert & Ann Marcus
Joseph Misner
Gerald G. Mugele
Cortland Myers
Mrs. James L. Oetzel
Benjamin D. Parmeter
Larry Perkins
Cecil A. Poole
Jack B. Power
Marjorie L. Power
Donald C. Reed
Thomas L. Rodgers
Lawrence Sansone III
Dr. Luis Santaella
William G. Shaw
Cecil N. Smith
Thomas and Barbara Southworth
Nancy and Harold Spear
Shumway Suffel
Nathan C. Sweet, Jr.
Mrs. Reese Hale Taylor
Carl Thelander
Gerald Tolman
Mrs. Edna Vollmer
Jack L. Wallace
Margaret Watson
Bob and Carol Yutzy
Fred Ziegler

REGULAR

Mr. and Mrs. Harry Adamson
Dr. David Ainley
Daniel Airola
Elmer Aldrich
J. Garth Alton
William Amundsen
Mrs. Beth H. Anderson
Daniel W. Anderson
Mary Anderson
Walter Anderson
R. Jay Andree
Natasha Antonovich
Paul Arnerich
John R. Arnold
Jon L. Atwood
Keith Axelson
Dr. Edgar H. Bailey
Stephen F. Bailey
Bryant Bainbridge
Alan Baldridge
Larry Ballard
Seaver Ballard
Mr. Ebbe Banstorp
David Bates
Robert Barnes
Cameron and Katherine Barrows
John H. Baumgardt
Harold A. Baxter
Dennis Beall
Frank Becherer
Mrs. Raffi Bedayn
Edward C. Beedy
William H. Berger
Charles H. Bernstein
Barbara Berton
Louis Bevier
Mr. and Mrs. Frank K. Beyer
George F. Bing
Robert E. Blackstone
Clark Blake
Tupper Blake
Don Bleitz
Bruce W. Bohmke
A. J. Borodayko
William Bousman
Mr. and Mrs. Charles G. Bowen
Robert I. Bowman
Helen Boyd
John Brack
Jean Brandt
Dr. R. L. Branson
Dave Brennan
A. Briggs

Kenneth T. Briggs
N. Bruce Broadbooks
Henry M. Brodkin
Dr. and Mrs. Douglas Brotz
George Bryce
Mr. Cortney Buechert
Elizabeth Burridge
Mr. and Mrs. Glenn A. Burris
Linda Belluomini
Roy S. Cameron
Kurt Campbell
Steven Cardiff
Roy B. Carlson
Theodore Chandik
Douglas Cheeseman, Jr.
Clarence Chrisp
Cathy C. Cibit
Alvin J. Clark
Herbert Clarke
Sadie Coats
Mrs. Sloan Coats
James L. Coatsworth
Howard L. Cogswell
Gerald Collier
Dr. Charles T. Collins
Kathy Colmar
Mrs. Mildred Comar
Herold Connon
Mr. and Mrs. Robert Copper
Christopher Coulon
John Cowan
Richard L. Cunningham
Art Cupples
Michael J. Cussen
Valeria DaCosta
Loring Dales
Dr. John Davis
Linda S. Delaney
David F. DeSante
Bruce E. Deuel
Ms. Denise Devine
Fred Dexter
Flip Dibner
Elizabeth Dickey
William Dillinger
Donna Dittmann
Linda Dixon
Shirley L. Doole
Dave Dunaway
Jonathan Dunn
Victoria M. Dziadosz
Mrs. J. Lloyd Eaton
Claude G. Edwards, Jr.
Brian Egger
Raymond Ekstrom
Stan W. Elems
Bruce G. Elliott
Willis K. Elliott
Doug Emery
Sidney England
Chris Englert
C. R. Epley
Richard Erickson
Ronald Escano
Michael U. Evans
William T. Everett
James B. Fairchild
Mrs. Laurel Feigenbaum
Mrs. Stephenie S. Ferguson
Hal Ferris
Linda Fontes
Stanley G. Ford
Steven Forsell
Joel and Barbara Fowler
Marilyn Fowler
Dr. Kathleen E. Franzreb
Mike Fredette
Tom Frillman
Virgil Frizzell
Jeffrey Froke
Mrs. Hubert Fry
Gary N. Fugle
H. R. Gable
David Gaines
Earl H. Gann
Kimball Garrett
Richard Gehman
Steve Gellman
Ronald Genung
R. H. Gerstenberg
Ms. Clara Golden
Sharon Goldwasser
Douglas E. Gomke
Phil Gordon
Rod Goss
Mr. and Mrs. Gordon Gould, Jr.
Wade Graham
Steve Granholm
Gilbert S. Grant
Dr. Edward Greaves
Ms. Helen Green
William E. Grenfell, Jr.
Dr. John Gustafson
D. A. Guthrie
Jeffrey D. Hackel
Dr. Gerald Haigh
Elwood Hain
James Hale

Walt Halland
B. P. Hand
Anne-Lise Hansen
Mrs. Beth Hansen
Michael and Doreen Harer
David L. Harlow
Mrs. Deyea V. Harper
Roger D. Harris
Sydney P. Harrison
Tony Harrow
Ms. Lois Harter
John and Helen Hartman
Dorothy A. Harvey
Tom Harvey
Ruth Hawksley
Andrew Haynes
William W. Haynor
Fred Heath
Fred Heidl
Gloria Heller
Roger C. Helm
Valdemar Hempel
Philip Henderson
Diana Herron
Dr. John G. Hewston
Glenda Hightower
Thomas D. Hinshaw
Robert W. Hirt
Dr. Jim Hitchcock
James Hodgson
Don Hoechlin
R. W. Hoellwarth
Norman D. Hogg
Craig Hohenberger
Norman E. Holgersen
Howard Honig
Joel H. Hornstein
Kenneth Howard
William A. Howard
Vernon Howe
Ralph Hudgins
George Hugenberg, Jr.
Hillary Hulen
George L. Hunt, Jr.
Julia Ingham
Elizabeth Ingles
Marguerite Jabinson
Carl A. Janson
Dr. Joseph R. Jehl, Jr.
Leroy L. Jensen
Richard Jimenez
Robert C. Johnsen
David Johnson
David H. Johnson
Dorothy Johnson
Dr. Eric V. Johnson
Jerome A. Johnson
Larry Johnson
Ned K. Johnson
Richard F. Johnson
Rixon A. Johnson
Ronald Johnson
Virginia Johnson
Cindy Jones
Jean S. Jones
Lee Jones
William P. Jones
Carlos W. Jordan
Donald Jordan
Brian Joseph
Susan Kaiser
Vincent P. Kehoe
Mrs. Margaret T. Keith
Mary Kelley
Nina Kelly
Shirley Jane & Michael Kelly
Kenneth Kertell
Howard Kessler
Gary Key
Lloyd Kiff
Jean Kimmich
David King, Jr.
Dr. C. Kinsell
Dr. Jack L. Kinsey
Barbara Klasson
Jacqueline Knisley
Walt Koenig
Ms. Dell Lacy
Karen C. Lamp
Alvin M. Lapp
Peter LaTourrette
William and Donna Laudenslayer
Robert H. Laws
Stephen A. Laymon
Matthew Leddy
Roger J. Lederer
Tom E. Lee
Paul Lehman
William G. Lehmann
W. H. Lenarz
Philip Lenna
Clarann Levakis
David B. Lewis
Robert A. Lewis
Jim and Sue Liskovec
Dr. Steven E. Liston
Robert Lockett
Mr. and Mrs. Eric T. Lodge

Dr. Albert E. Long
Phillip Lubina
Susanne Luther
James Lynch
Lela F. MacCracken
John A. MacDonald
Brian J. McCaffery
Mrs. Katherine McCann
Steve McCormick
Marjorie H. McCulley
Mrs. Louise J. McCullough
E. P. McElhany
Joseph McGee
Bev McIntosh
Donald T. McLaughlin
Mr. and Mrs. Morton McMichael
Fred Machetanz
Paul Mack
Mrs. L. G. Maclise
Dr. Gerald Maisel
Mrs. Laurette Maisel
Robert Mallette
Marie L. Mans
Mrs. Barbara Margolis
Frances Mariposa
Miss Gloria Markowitz
Barbara Massey
Mrs. Helen Matelson
William W. Mather
Jim Matzinger
Mr. and Mrs. George A. Mealy
T. Nelson Metcalf
Dr. L. Richard Mewaldt
T. E. Meyer
Sharon Milder
Gregg Miller
Martha K. Miller
Charles Mirandon
Mabel E. Mires
Dale Mitchell
Lorraine Moeller
Ms. Lydia Momotuk
Alan Moore
David Moore
Narca Moore
Joseph Morlan
James R. Morris, Jr.
Ms. Martha Morrow
Jonathan Mulcare
Steve Mulligan
Daniel P. Murphy
Paul Neal
Rick Near
Eric and Marilyn Nelson
Mr. and Mrs. L. O. Nelson
Don Neubacher
Mike Newcomer
Dr. Walter Nichols
Grace A. Nixon
Larry Norris
Mrs. Virginia M. Norris
Christine Nyhan
Mr. R. E. O'Brien
John O'Connell
Robert O'Donnell
Gary Page
Wayne A. Palsson
Arvil L. Parker
Carla Parsons
Ms. Kay Partelow
Sally Pearce
Les and Mel Perry
George Peyton
Richard Philibosian
Robert P. Phillips
R. L. Pitman
Anne Plachta
Dr. Agnes Plate
Clayton J. Pollard
Dave Povey
Mrs. Helen M. Pratt
T. S. Prescott
Robert Joe Prickett
Mr. and Mrs. Jack Proffitt
William M. Pursell
John Quick
Robert Ramer
Sylvia J. Ranney
William Reese
Stephen Reeve
Charles A. Reneau
Diane Renshaw
David Rice
Ms. Elsie Richey
Mrs. Jean Richmond
Robert J. Richmond
Mindy Richter
Dr. Roger W. Ridley
Lyman V. Ritter
Robert Roadcap
Michael Robbins
Don Roberson
Norman C. Roberts
Ms. Debi Robinson
Ms. W. Rockman
Robert Rodrigues
Pamela Roe
Ivana Roland

Kristin Roper
Mrs. Harold Rosegay
Martha E. Rosenquist
Peter and Adena Rosmarin
Peter M. Ross
James L. Rosso
Paul Roush
Allen Royer
Bob Rutemoeller
Dr. and Mrs. Donald C. Samson
Andrew Sanders
J. Michael Sanders
Phillip R. Sayre
Phil & Margaret Schaeffer
Alfred Schmitz
Donald E. Schmoldt
Mrs. Rae Schmuck
William R. Schock
Bradford K. Schram
Don A. Schroeder
Gertrude Schuckert
Stuart Schulz
Ivan R. Schwab
Michael Scriven
Milton L. Seibert
Marianne R. Shepard
John W. Shipman
Dave Shuford
Ms. Pamela A. Sibley
Vicki Silvas-Young
Karen L. Slemmer
Arnold Small
Dr. Kenneth C. Smith
Tom W. Smith
Paul E. Smythe
Mrs. Jean-Marie Spoelman
Paul Springer
Malcolm J. Sproul
Richard W. Stallcup
Donald S. Starks
J. S. Steller
Thomas Steller
Lynne Stenzel
Frederick B. Stimson, III
Don Stiver
Rosemary P. Stock
William J. Stone
Nick Story
Dr. Ellen G. Strauss
Mrs. Marie Sweadner
Sylvia Sykora
John E. Taft
Ian C. Tait
Dean W. Taylor
John Thaw
Dr. and Mrs. S. F. Thomas
William H. Thomson
Ric Thowless
E. Wayne Tillay
C. Robert Tittle
Dorothy Tobkin
Ruth Troetschler
Ms. Barbara Trowbridge
L. L. Tuttle
Robert Tweit
William Breck Tyler
Dr. M. D. Udvardy
Philip Unitt
G. N. Van Essen
Kent Van Vuren
Daniel Varoujean
George W. Venatta
Jared Verner
William R. von Bergen, Jr.
Judith L. Wagner
George W. Waldie
Penny Walker
Kenneth Warner
Charles Washburn
Marion Waterhouse
Wesley W. Weathers
Janeece Webb
Richard E. Webster
Mr. W. W. Weddendorf
Michael Weinstein
Janet Wessel
Gilbert West
Ms. Susan West
Jack Whetstone
Sharon Whisler
Jean White
Drs. Marshall and Jennifer White
Peter and Dolores White
Kitty Whiteside
Jim Widess
Harold Allen Wier
Mike Wihler
Sanford R. Wilbur
Gerald S. Wilkinson
Alice L. Williams
Diane Williams
Douglas H. Williams
Stephanie Williams
William Williams
Carolyn Willison
Peter A. Willmann
Chris Wilson
Mrs. Cora S. Wilson

Dr. Howard I. Wilson
Dr. Steven C. Wilson
Summer Wilson
David Winkler
Jon Winter
Milton A. Wise
Clarence M. Wolcott
Vernal L. Yadon
Rita Zamacona
G. W. Zamzow
Robert R. Zappala
Mrs. Maurice L. Zeff

COLORADO

LIFE

Jim Lane

REGULAR

Robert Andrews
Winston and Sylvia Brockner
Dr. Jeanne A. Conry
Allen B. Crockett
Alexander Cruz
Deborah Davis
Dr. Peter R. Gent
Dave A. and Carolyn Griffiths
Robert & Nancy Gustafson
Geoffrey A. Hammerson
Louise Hering
Ed Hollowed
Mark Holmgren
Hugh E. Kingery
Barry G. Knapp
Tim Manolis
Jack Reddall
Dr. Joseph Roller
William C. Shuster
Mildred O. Snyder
Peter C. Sorensen
Judd E. Sundine
Betsy Webb
Bruce Webb
Nancy Zavitz

CONNECTICUT

CONTRIBUTING

Nicholas M. Greene

REGULAR

Phillip N. Brylski
Roger Tory Peterson
Steven Sibley

FLORIDA

REGULAR

William and Helen Dowling
Maj. Alfred Driscoll
Hal H. Harrison
Dr. R. L. Kelley
Julian Lee
Robert C. Lee, Jr.
Alfred Liberman

GEORGIA

REGULAR

Terry Moore

HAWAII

LIFE

Charles van Riper III

CONTRIBUTING

Mr. and Mrs. H. L. Scantlin

REGULAR

Dr. Sheila Conant
Lawrence T. Hirai
C. John Ralph
Dr. J. Michael Scott

IDAHO

REGULAR

Tom Fulton
Dean H. Jones

ILLINOIS

REGULAR

Lawrence G. Balch
H. David Bohlen
Betsy Bush
Charles T. Clark
Richard DeCoster
James Latturner
Randy L. Morrison
Grace F. Smith

INDIANA

REGULAR

John Coons
Larry Peavler

IOWA

REGULAR

Thomas H. Kent

KENTUCKY

REGULAR

Dr. Burt L. Monroe, Jr.
Jon E. Rickert

LOUISIANA

REGULAR

H. Douglas Pratt
Dr. J. Van Remsen, Jr.
Tom Schulenberg
Sartor Williams

MAINE

REGULAR

Norman Famous
Will Russell

MARYLAND

CONTRIBUTING

Henry Bielstein

REGULAR

Paul J. Baicich
Carl Carlson
Douglas Cook
Ethel Dolnick
R. Lindsay Lilly, Jr.
S. Harvey and Marion Mudd
Bob Ringler
Josephine Walker

MASSACHUSETTS

CONTRIBUTING

Donald C. Alexander

REGULAR

Kathleen S. Anderson
William Blakeslee
Dr. and Mrs. P. A. Buckley
Alden G. Clayton
Mr. and Mrs. Bruce Eaton
Stuart Henderson
Joseph T. Leverick
Bernard Morrissey
Blair Nikula
Wayne R. Petersen

MICHIGAN

CONTRIBUTING

Dr. Thomas Killip

REGULAR

James A. Fowler, Jr.
Thomas V. Heatley

MINNESOTA

REGULAR

Terry Savaloja
Gary Simonson

MISSISSIPPI

REGULAR

Wayne C. Weber

MISSOURI

CONTRIBUTING

Carmen J. Patterson

REGULAR

Phoebe Snetsinger

MONTANA

CONTRIBUTING

H. N. Metcalf

REGULAR

Mrs. Marcella Bishop
Elaine Hammer
Lorin and Vickie Hicks
P. D. Skaar

NEBRASKA

REGULAR

Richard Rosche
C. Fred Zeillemaker

NEVADA

REGULAR

J. R. Alcorn
M. Vincent Mowbray
Dr. Fred Ryser

NEW HAMPSHIRE

REGULAR

H. Cook Anderson
William T. Tucker

NEW JERSEY

LIFE

Allan Keith

REGULAR

Theodore Chase, Jr.
David C. Duffy
Michael Gochfeld
Douglas P. Kibbe
Charles Lincoln
James K. Meritt
Rodney A. Norden
James Scarff
Don Schwab

NEW MEXICO

REGULAR

Peter Carruthers
Richard Castetter
Kay Dreher
L. G. Hawkins
Patricia J. Latas
Mrs. Daniel McKnight
Dr. William Stone
Richard Wilt

NEW YORK

SUPPORTING

Joseph W. Taylor
Mr. and Mrs. Gates Weisberg

REGULAR

Martin Borko
Dr. Paul DeBenedictis
Robert W. Dickerman
Susan Roney Drennan
Orville M. Dunning
Frieda Fairchild
Dr. Gordon M. Meade
Vaughn W. Morrison
Richard H. Pough
Fritz Scheider
Dr. Barbara J. Spencer
John Wall

NORTH CAROLINA

REGULAR

Dwight Lee

NORTH DAKOTA

CONTRIBUTING

Dr. and Mrs. Kenneth J. Johnson

REGULAR

Thomas A. Gatz
Capt. John F. Kelley, Jr.

OHIO

CONTRIBUTING

Elinor Elder

REGULAR

William W. Baum
William Creasey
Mr. and Mrs. John Dale
Mr. and Mrs. John A. Shrader
Ray Wlodarski

OKLAHOMA

REGULAR

Dr. W. A. Carter
Dr. F. L. Knopf

OREGON

CONTRIBUTING

Harry B. Nehls
Steven D. Summers

REGULAR

David A. Anderson
Norman M. Barrett
Range Bayer
Richard A. Bradley
Mark Egger
Tad and Kathy Finnell
Tyler S. Groo
Charles J. Henny
Ronald J. Klein
Carroll D. Littlefield
Lawrence B. McQueen
David Marshall
Jerry A. Roppe
Otis D. Swisher
Steve Thompson
Mrs. Clarice H. Watson

PENNSYLVANIA

CONTRIBUTING

G. Bernard Van Cleve

REGULAR

Henry T. Armistead
A. M. Lawson
James M. Loughlin
Bernard Morris
Kenneth C. Parkes
Keith C. Richards

RHODE ISLAND

REGULAR

Robert Conway
Douglas L. Kraus
Don V. Tiller

SOUTH DAKOTA

REGULAR

Jocelyn Lee Mortimer
Reva Pearce

TENNESSEE

CONTRIBUTING

Tom Wilmers

TEXAS

LIFE

J. P. Malott

CONTRIBUTING

Charles W. Sexton
John Sproul, Jr.

REGULAR

Alma Barrera
Gene W. Blacklock
Ron and Marcia Braun
Mary Ann Chapman
T. Ben Feltner
Bill Hoppes
R. H. Moulton
Dr. A. W. O'Neil
Frances Williams

UTAH

REGULAR

Dr. Martha H. Balph
William H. Behle
Keith L. Dixon
Richard D. Porter
Kimberly Smith

VERMONT

REGULAR

Bruce Sorrie

VIRGINIA

REGULAR

Ron Naveen
John Rowlett
Roland H. Wauer

WASHINGTON

CONTRIBUTING

Jack. E. Davis
Glen Hoge

REGULAR

Ruby Allen
C. M. Anderson
Alice Benedict
Chris Chappell
Philip Cheney
Mike Donahue
James P. Farrell
Larry and Jacque Goodhew
William Harrington-Tweit
Steven Herman
Susan Hills
Eugene Hunn
Dr. Richard E. Johnson
Martha Jordan
Richard L. Knight
Tim Martin
Philip W. Mattocks, Jr.
Dr. William Mulligan
John O'Connell
Dennis R. Paulson
Evelyn W. Peaslee
Georgia H. Ramsey
Wally Sumner
Gerald V. Tangren
Ron Toonen
Terence R. Wahl
Arthur Wang
John W. Weber
Thomas W. Weir
Bart Whelton
Ralph Widrig
Dr. Robert Woodley

WISCONSIN

REGULAR

Dan Minkebige

WYOMING

REGULAR

Sophia S. Bogart
Helen Downing
Mrs. Robert Hanesworth
Dr. Oliver K. Scott

WASHINGTON D.C.

CONTRIBUTING

W. Graham Metson, Jr.

REGULAR

Paul DuMont
Jay M. Sheppard
Lt. Col. John P. Upchurch
Claudia P. Wilds

GUAM

REGULAR

Harry Krueger

CANADA

ALBERTA

M. Ross Lein
Martin K. McNicholl
Dr. M. T. Myres

BRITISH COLUMBIA

Doris Brigham
Chester S. Chard
Mike Force
J. E. V. Goodwill
Al Grass
E. H. Grossman
Ms. Suann Hosie
Barry Sauppe

MANITOBA

Spencer Sealy

NEW BRUNSWICK

Stuart Tingley

ONTARIO

D. H. Elder
Gavin Joanston
David M. Mark

BELGIUM

Pierre Devillers
Jean Terschuren

BOLIVIA

Tom Heindel

ENGLAND

Jeffrey Boswall
Frederick Watson

IRELAND

Pilib O'Buachalla

MEXICO

Allan R. Phillips

SWEDEN

Hans Jornvall

SWITZERLAND

Annette Adams
Harvey Gilston

VENEZUELA

Allen B. Altman

INSTITUTIONAL MEMBERSHIPS

ARIZONA

Arizona State University, Tempe
Arizona Game and Fish Dept., Phoenix
University of Arizona, Tucson

CALIFORNIA

BLM Desert Plan Program, Riverside
California Academy of Sciences, San Francisco
California Dept. of Fish and Game, Long Beach
California Institute of Technology, Pasadena
California Polytechnic State University, San Luis Obispo
California Resources Agency, Sacramento
California State College, Sonoma, Rohnert Park
California State Library, Sacramento
California State University, Chico
California State University, Fresno
California State University, Long Beach
Chabot College, Hayward
Claremont Colleges, Claremont
Claremont Library
Golden Gate Audubon Society, Berkeley
Humboldt State University, Arcata
Los Angeles Public Library, Los Angeles
Marin County Free Library, San Rafael
Museum of Vertebrate Zoology, Berkeley
Naval Undersea Center, San Diego
Oakland Public Library, Oakland
Occidental College, Los Angeles
Pacific College, Azuza
Pacific Union College, Angwin
Peninsula Center Library, Palos Verdes Peninsula
Point Reyes Bird Observatory, Stinson Beach
Sacramento City Library, Sacramento
San Bernardino County Museum, Redlands
San Diego County Library, El Cajon
San Diego County Library, San Diego
San Diego Natural History Museum, San Diego
San Diego State University, San Diego
San Diego Zoo, San Diego
San Francisco Public Library, San Francisco
San Jose State University, San Jose
Santa Barbara Museum of Natural History, Santa Barbara
Santa Monica Public Library, Santa Monica
Scripps Institution of Oceanography, La Jolla
Stanford University, Stanford
University of California, Berkeley
University of California, Davis
University of California, Irvine
University of California, Biomedical Library, Los Angeles
University of California, Dept. of Zoology, Los Angeles
University of California, La Jolla
University of California, Santa Barbara
University of California, Santa Cruz
Western Foundation of Vertebrate Zoology, Los Angeles
Yosemite Natural History Association, Yosemite National Park

COLORADO

Fish and Wildlife Service, Wildlife Research Center, Denver
Office of Surface Mining Library, Denver

CONNECTICUT

Peabody Museum of Natural History, New Haven

DELAWARE

Delaware Museum of Natural History, Greenville

FLORIDA

Florida State University, Tallahassee
Florida Technological University, Orlando

IDAHO

Idaho State University, Pocatello

ILLINOIS

Field Museum of Natural History, Chicago
University of Illinois, Urbana-Champaign

INDIANA

Ball State University, Muncie

IOWA

Iowa State University, Ames

KANSAS

University of Kansas, Lawrence

MARYLAND

Fish and Wildlife Service, Patuxent Wildlife Research Center, Laurel

MASSACHUSETTS

Massachusetts Audubon Society, Lincoln
Southeastern Massachusetts University, North Dartmouth
University of Massachusetts, Amherst

MICHIGAN

Central Michigan University, Mount Pleasant

MISSISSIPPI

Mississippi State University, Mississippi State College

MISSOURI

Linda Hall Library, Kansas City

MONTANA

Montana State University, Bozeman

NEW MEXICO

New Mexico Dept. of Game and Fish, Santa Fe
University of New Mexico, Albuquerque

NEW YORK

Buffalo Museum of Science, Buffalo
New York State College of Agriculture, Ithaca
University of New York, Albany

OREGON

Bureau of Land Management, Salem
George Fox College, Newberg
Oregon State University, Corvallis
Portland Audubon Society, Portland
Department of the Interior, Portland

PENNSYLVANIA

Carnegie Museum of Natural History, Pittsburgh
Millersville State College, Millersville

SOUTH CAROLINA

Clemson University, Clemson

TEXAS

Baylor University, Waco
University of Texas, Austin

UTAH

Brigham Young University, Provo

VIRGINIA

Virginia Polytechnic Institute and State University, Blacksburg

WASHINGTON

Evergreen State College, Olympia
National Wildlife Fellowship, University of Washington, Seattle
University of Washington, Seattle
Washington State Library, Olympia
Washington State University, Pullman
Western Washington State College, Bellingham

WYOMING

University of Wyoming, Laramie

AUSTRALIA

CSIRO, Division of Wildlife Research, Lyneham
National Library of Australia, Canberra

CANADA

ALBERTA

Lakeland College, Vermilion
Canadian Wildlife Service, Edmonton

BRITISH COLUMBIA

British Columbia Provincial Museum, Victoria
University of British Columbia, Vancouver

ONTARIO

Carleton University Library, Ottawa
National Museums of Canada, Ottawa
University of Western Ontario, London

QUEBEC

McGill University, Montreal

DENMARK

University Library, Copenhagen

ENGLAND

British Library, Wetherby, Yorkshire
British Museum, London
Edward Grey Institute, Oxford
Science Reference Library, London

FRANCE

Bibliotheque du C.N.R.S., Paris

GERMANY

Zeitschriftenabteilung, Senckenbergische Bibliothek, Frankfurt

NETHERLANDS

Bibl Kon Ned Akad Wetensch, Amsterdam

SWEDEN

Goteborgs Universitet, Goteborg

UNION OF SOUTH AFRICA

Transvaal Museum, Pretoria

UNION OF SOVIET SOCIALIST REPUBLICS

Akademii Nauk SSSR, Filial Biblioteki, Moscow

EXCHANGES

Alauda (France)
American Museum of Natural History, Novitates and Bulletin
AOU Committee on Classification and Nomenclature
Audubon Magazine
Auk, The
Aves (Belgium)
Biological Abstracts
Birding
Bird Observer of Eastern Massachusetts
British Birds
CFO Journal
Emu, The (Australia)
Fagelvarld, Var (Sweden)
Florida Naturalist
Gerfaut, Le (Belgium)
Iowa Bird Life
Irish Bird Report
Key-Word-Index, Swiss Wildlife Information Service
Limosa (Netherlands)
Loon, The
Migrant, The
Murrelet, The
Notornis (New Zealand)
New Jersey State Museum
Oiseau, L' (France)
Ornis Fennica (Finland)
Ornithologische Beobachter Schweizerische Vogelwarte, Der (Switzerland)
Ostrich, The (Union of South Africa)
Revue Francaise d'Ornithologieue, La (France)
Ring, The (Poland)
Seabird Group, The (Scotland)
Smithsonian Institution
US Dept. of Interior, Office of Library Services
Western Tanager, The
Wilson Bulletin, The
Xerox University Microfilms
Zbornik (Czechoslovakia)
Zoological Record (England)

Volume 10, Number 2, 1979

A Seabird Die-off on the Washington Coast in Mid-winter 1976 *Bill Harrington-Pavitt* 49

Colorado Field Ornithologists Official Records Committee Report 1976-1977 *Robert Andrews* 59

Field Identification of the Hawaiian Creeper on the Island of Hawaii *J. Michael Scott, Sheila Conant and H. Douglas Pratt* 71

NOTES

Southern Race of Xantus' Murrelet Breeding on Santa Barbara Island, California *Kathy A. Wenzel, Kelvin G. Marav and John C. Wenzel* 81

Breeding of Allen's Hummingbird (*Selasphorus sasin sedentarius*) on the Southern California Mainland *Shirley Wells and Lois F. Ripper* 83

A Sharp-tailed Sandpiper in Colorado, With Notes on Plumage and Behavior *Bruce E. Webb and Jeanne A. Court* 86

A Dotterel on Southeast Farallon Island, California *Philip Henderson* 92

Identification Notes *Field Identification Papers Committee* 95

Western Field Ornithologists Membership List – 1978 97

BULLETIN BOARD 111

Manuscripts should be sent to Alan M. Craig, 3592 Winton Way, Carmichael, CA 95608. For matters of style consult *Suggestions to Contributors to Western Birds* (6 pp. mimeo) available at no cost from the Editor, and *Council of Biology Editors Style Manual*, 4th edition, 1978 (available from American Institute of Biological Sciences, 1401 Wilson Boulevard, Arlington, VA 22209 for $12.00).

Papers are desired that are based upon field studies of birds, that are both understandable and useful to amateurs, and that make a significant contribution to scientific literature. Appropriate topics include distribution, migration, status, behavior, ecology, population dynamics, habitat requirements, the effects of pollution, and techniques for identifying, censusing, sound recording and photographing birds in the field. Papers of general interest will be considered regardless of their geographic origin, but particularly desired are papers dealing with studies accomplished in or bearing on Rocky Mountain states and provinces westward, including Alaska and Hawaii, adjacent portions of the Pacific Ocean and Mexico; and western Texas.

Authors are provided 50 free reprints of each paper. Additional reprints can be ordered at author's expense from the Editor when proof is returned or earlier.

Good photographs of rare and unusual birds, unaccompanied by an article, but with caption including species, date, locality and other pertinent information, should be submitted to Stephen A. Laymon, 3290 Arkley Road, Larkspur, CA 94939.